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News Print Merger Negotiations Proceeding

Leaders In Canadian Industry Continue Strenuous Efforts to Arrive At Some Plan of Action to Bring Order Out of Prevailing Chaos—A. R. Graustein, President of the International Paper Co. Confers with Bankers' Committee—The Impression Grows that an Announcement May Be Forthcoming at any Moment

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., November 7, 1932.—The past week has seen a continuation of the strenuous efforts of leaders in the news print industry to arrive at some plan of action whereby order may be brought out of the present chaos. The Bankers' Committee, headed by E. W. Beatty, K. C., president of the Canadian Pacific Railway, has held a number of meetings with a view to furthering the plan for a large scale amalgamation of news print concerns, and A. R. Graustein, president of the International Paper Company, has again been in Montreal and has been in earnest conference not only with members of the above-mentioned committee but with others prominently interested in the industry. So far no official intimation has been given as to what progress, if any, has been achieved in an effort to straighten out the present ruinous situation, but the impression grows that an announcement may be forthcoming at any moment.

Price Bros.' Interest in Default

Following a meeting here of the directors of Price Bros. and Co., it was announced that the company was unable to meet payments, now due, of interest on the Company's outstanding issue of $11,061,600 six per cent first mortgage bonds. The interest fell due on August 1, but in accordance with the terms of the Trust deed securing the issue the company has been allowed 90 days grace to meet its obligation. This period expires on Monday. Inadequacy of the company's cash resources, and the failure of negotiations to secure funds are given as reasons for default.

The situation which has arisen as a result of the default may be summarized as follows: A protective committee has already been formed by the company's bondholders to protect their interests, and has requested deposits of proxies in the committee's favor enabling it to act on behalf of the entire body of bondholders. Upon deposit of bonds to an amount not less than 25 per cent of the outstanding issue, the committee may, at its discretion, instruct the trustee in writing to appoint a manager for the defaulted company, or to take such other steps as shall best protect the interests of the bondholders. It was not known last night what steps the protective committee proposes to take.

This failure to meet interest payments renders uncertain the status of the Duke Price Power Company contract with Price Bros. Of the 350,000 h.p. total contracts held by Duke Price Power, Price Bros. had contracts to use 100,000 h.p. including 40,000 h.p. under a 50 year contract and 60,000 h.p. under a 10 year contract. Duke Price Power Company is controlled by Aluminum Company of Canada, a subsidiary of Aluminum, Ltd. In the event of receivership Duke Price Power would be in the position of a creditor.

Lake St. John Reorganization

Following the recent announcement that the Lake St. John Power and Paper Company had been unable to pay the interest which became due on August 1 on its bonds and debentures, a committee representing holders of these securities is to be appointed at a meeting to be held in Toronto on December 8.

It is proposed that the committee shall have power to cooperate with the trustee in an investigation of the company's affairs and its financial situation and in the preparation of a plan of reorganization.

It is further proposed to empower the committee to postpone semi-annual interest payments and sinking fund instalments on the company's bonds and debentures, such postponements to be for any period not later than August 1, 1934.

Nashwaak Mill in Operation

The Port Royal Paper and Pulp Company's plant at Saint John, N.B., formerly the Nashwaak mill, which had been closed down for two years, is now in operation with almost a full staff of some 140 men on the payroll. The management state they have orders on hand in the New England markets which justify operations and that, as things are at present, the output should nearly reach normal.

Crown Willamette Resumes at West Linn

PORTLAND, Ore., November 4, 1932—The Crown Willamette Paper company at West Linn, near Oregon City, Ore. has resumed its normal production schedule after a short shut-down of two weeks. The mill was closed to permit general overhauling of machinery and equipment.

Paper Business Improving in Wisconsin

Volume of Trading Registers Notable Gain and Employment Increases Substantially—Many Plants Which Were Operating Four Days Per Week Are Now Working On Full Six Day Schedule—Definite Upturn Indicated

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., November 7, 1932.—A notable gain in volume of business and a substantial increase in employment were reported for the paper industry of Wisconsin in the September report of the United States Employment Service. A number of mills which were operating four days a week are now on a schedule of six full days a week, the report says. Increases in tonnage are more than seasonal and this of course points to a very definite upturn in business.

Waste Liquor Salvaging

Salvaging of the waste liquor discharged by sulphite mills and its manufacture into cattle food is contemplated by two Milwaukee men, Robert Cramer, consulting engineer, and August C. Orthmann, consulting chemist. After two years of experimentation, these men believe they have developed their process to a commercial stage, and have applied for patents on their process. A part of the reclaimed material also will be used for fertilizer. Whey dumped into rivers by cheese factories, and refuse from plants manufacturing alcohol and other solvents are also included as possible sources of the new products.

Mr. Cramer states that all of these wastes contain solids that when properly treated, filtered out and dried become a highly concentrated protein material that may be mixed in the hay and other foods given to cattle. The material may be furnished to the farmer either as a flour or compressed into cakes. "It has properties like meat," he said. "It may be cooked and made into broth that smells like beef bullion."

The principal part of the solids in these industrial wastes is bacterial foods, Mr. Cramer further explains. These microbes are highly active. Some of them are microscopic plants (bacteria, moulds and yeasts) and other microscopic animals (protozoa).

In the paper mills districts, there are such quantities of waste that it would pay to build central plants and pipe the waste to them, just as is done in a sewage disposal system, he said. In the paper mill section of the Fox River Valley from Appleton to Green Bay, the solid material in the waste from the sulphite pulp plants amounts to 500 tons a day. That is five times more than the solids recovered daily at the sewerage plant of the city of Milwaukee, and is only 25 per cent of the total similar waste in Wisconsin poured into the Fox, Wisconsin and St. Croix rivers. Wisconsin's waste is only 10 per cent of the paper mill waste in the country.

D. C. Everest Supports Hoover

D. C. Everest, general manager of the Marathon Paper Mills Company, Rothschild, Wis., and former president of the American Pulp and Paper Association, was one of the men strongly advocating the re-election of President Herbert Hoover. He issued a statement through the Republican national committee declaring Hoover must be re-elected if the paper business and allied industries are to be assured of protection from "tariff tinkering." He said: "No industry in the United States is more essential to business and business recovery than the paper manufacturing business. None of the industries drawing on the natural resources of the country is more in need of the continuation of the protective policy of the Republican party than the paper industry.

"With its thousands of employees directly employed in the manufacture of paper and board and thousands more engaged in the production of pulpwood, the collection of waste paper and rags, the manufacture of paper and board into containers and other paper articles and finally the sales and distribution of these products, it represents a tremendous number of people dependent on the sixth greatest industry in the United States.

"With the situation existing in the pulp and paper producing countries such as Norway, Sweden, Finland, Germany, Russia and other countries, due to low wages and depreciated currency, it is essential that there be no reduction or elimination of tariff on the present schedules if this industry is to exist and men and women now employed continued in their present position.

"Tariff tinkering will upset this industry, and the interests of those engaged in it will be best served by continuing Mr. Hoover as president of the United States."

Forest Highway Planned

Construction of a 24-foot forest highway eighteen miles long through the Argonne National Forest in Vilas and Forest Counties of Northern Wisconsin is to be carried on this winter, according to Earl W. Tinker, federal forester of the Lake States. Most of the route will be through timber and brush, which will be cleared this winter. The road will be graveled, the first so built in federal forests. It will connect with a similar highway in the Ottawa National Forest in Northern Michigan. About $20,000 will be spent on the project. The road will be an important addition to the fire prevention program of the government for the national forests.

News of the Industry

Two paper mills at Kaukauna, Wis., using 80 per cent of the kilowatt hours of the Kaukauna municipal electric utility will not participate in a reduction in rates ordered by the Wisconsin Public Service Commission. New rates will be $3.50 as the minimum charge for consumers instead of $4.50. Only 40 kilowatt hours instead of 50 will be sold for 90 cents additional. Rates to the mills will remain the same as heretofore.

A cargo of pulp from Germany aboard the freighter Bretenburg was unloaded last week at Manitowoc, Wis., for Fox River Valley paper mills. It is the first shipment received at the port from Germany brought by a vessel from its home port. Large quantities have been received at Wisconsin ports in the past not only from Norway but from Sweden as well.

Dr. Eagles Goes With Powell River

VANCOUVER, B. C., November 4, 1932—Addition to the research staff of the Powell River Pulp and Paper Company of Dr. Blythe Eagles has now been announced by the management of the concern. Dr. Eagles will have his headquarters at Powell River. He was formerly a member of the Faculty of Agriculture at the University of British Columbia in Vancouver.

Chicago Paper Market Still Marking Time

Some Factors In the Industry Anticipate Definite Progress Now That Elections Are Over—While Improved Demand for Various Grades of Paper Board Prevails, Other Divisions Continue Practically Unchanged

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., November 5, 1932.—Chicago paper markets are more or less marking time until after the elections. In some cases, however, first of the month business showed a slight increase over the same period in October and representatives here feel that with the election uncertainty over some definite progress may be made. The majority of the markets are weak. Most of the mills, according to reports, have made no step to speed up production, with the exception of paper board mills, where a better demand has been experienced. News print and ground woods are dull, the former market dealing with a reported price situation that would undoubtedly disappear, say some authorities here, on the first appearance of really improved demand. Fine papers, particularly those designed for holiday demand, have experienced some pick up especially during the first four days of November. The attack of improvement has, however, been quite mild. Books and covers are dull. Krafts are moving along with no special weakness or strength marked. Waste markets are dull.

Statistics of the Paperboard Industries Association reveal a marked upturn commencing with August. For the first six months of this year volume was 15 per cent below 1931 figures. With the opening of August a marked change for the better took place, buyers' inquiries increasing and contracts for future delivery being sought and orders placed in a firming market. During September further gains were made until container operations advanced beyond seasonal expectations to the point of almost full-time plant operation.

Century of Progress Outlined

Fifty paper salesmen members of the Middle West Division of the Salesmen's Association of the Paper Industry, and their guests, spent a good share of Monday, October 31, listening to an outline of Century of Progress opportunities for the paper industry and visiting the Exposition grounds on Chicago's lake front which have grown to good sized proportions. Under the guidance of Harold Knott, president of the association, and Creighton W. Whiting, vice-president, Middle West Division, the salesmen enjoyed a luncheon held in the Green Room of the Administration Building of the Century of Progress and then heard Nelson Defoe, of the Century of Progress staff, outline some of the methods open to the paper industry to confront more than 18,000,000 visitors to the Exposition with the many uses and practicabilities of paper and paper products.

The Association seems to be thoroughly convinced that the opportunity should not go to waste and it is particularly interested in a novel plan suggested within its own organization for the dramatizing of paper and paper products to increase consumption. The idea centers around a paper house, built entirely from paper products and furnished throughout with paper and paper products. This, as expressed at the Monday meeting, would be one sure way of getting 18,000,000 potential paper users to note with a great deal of interest ways and means of increasing their own efficiency through the use of paper. The Association has communicated with executives of other trade groups, expressing their opinion and hoping that the seventh largest industry will be fully represented at the 1933 Century of progress.

News of the Trade

Mr. and Mrs. J. H. Cowhill have recently returned from a vacation in Bermuda. Mr. Cowhill is the representative, in this territory, of Tomahawk Kraft Paper Company, with offices at 111 W. Washington Street. Business has kept Mr. Cowhill from a vacation for a number of years and he and Mrs. Cowhill made up for it by a splendid trip through the South and Bermuda.

Chicago paper jobbers have added an extra charge for paper delivery outside the city limits of Chicago. The boost is being combatted by printers affected and particularly by the Calumet Ben Franklin Club. At a meeting on October 18 the chairman read letters from two Chicago paper houses outlining reasons that necessitated the raise in charges. The reasons were discussed but the printers still feel that the raise is not necessary and are refusing to pay the extra charge for a return of the former system.

Probably one of the most pretentious mailings sent out by paper manufacturers within the last few months is a mailing coming from Bermingham & Prosser illustrating progressive proofs on Peacock Folding Enamel. The progressive proofs are printed on 100 pound basis, white, high finish, Peacock Enamel in yellow plus red plus blue plus black. A running commentary on the practicability and quality of Peacock is skillfully carried on throughout nearly all the sixteen pages.

Here is regular 1932 stuff—the contents of *Rags in Paper,* issue number forty-three. "Away from the bargain counter to real values" is the heading of some unusually well written copy that anticipates the changing consumer mind—from bargains only to a real run for their money. The copy is worth a sound study on the part of all those who still persist in price and price for most. Here's a closing paragraph: "But buyers are now getting the kick-back and are suffering from this flood of lower priced and still lower priced merchandise of unknown value —and so it is that they are demanding the old standards. They are asking that the standards they have set up for themselves in the past be maintained, in order that the money they spend will be well spent."

Next Tuesday evening, November 8, the Chicago Paper Association will hold its annual dinner and elect officers for the ensuing twelve months period. Nominations include Earl Beier for chairman of the board; Walter Schulman, president; M. A. McNulty, vice-president industrial; William Chukerman, vice-president retail and James S. Danehy, secretary-treasurer.

New Asten-Hill Folder Out

"Lower Dryer Felt Cost Per Ton" is the title of a new folder just issued by the Asten-Hill Manufacturing Company, of Philadelphia, Pa. An interesting feature of the folder is the performance record summarized from engineering surveys. The many advantages of Asten asbestos dryer felts are also concisely described.

Ontario Paper Manufacturers Fairly Active

While Fine Paper Mills Are Enjoying Moderate Degree of Activity, Coarse Paper Plants Are Only Operating Lightly—Demand for Kraft Wrapping Paper and Paper Bags Listless—Coated Paper Mills Less Busy

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., November 7, 1932.—The month has opened up with a distinct falling off in paper sales volume in Ontario, although October stood up very well, according to most of the paper merchants. Generally speaking the paper trade is spotty and there are still a lot of enquiries that do not materialize into actual business. Cheaper grades of paper are still in the largest demand and if the call for the better grades equalled that for the cheaper stock, business, it is conceded, would be quite active. While most of the houses are doing a fair business, partially in anticipation of the seasonal Christmas trade, it must be said that the demand for paper is not at all what it should be. That a turn is near, however, is indicated by a better tone to business generally and a feeling of confidence that has not hitherto existed. The printing industry is decidedly quiet, although some of the lithographing companies are doing well, and comparatively light requisitions for stock are coming from both these sources.

A fair degree of activity exists as far as the fine paper mills are concerned while on the other hand coarse paper mills are operating lightly. The demand for wrapping paper and paper bags has not improved to any great extent and unfavorable conditions generally exist in the coarse paper market. There has been a falling off in activity of the coated paper mills, but book, bond and writing mills are fairly active, while there is a very good call for envelope paper. Light weight paper plants are none too busy and the paper converting mills are still complaining of lack of business. The board mills continue to suffer from overexpansion and over-production and the paper box industry is faced with a considerably lessened production of paper boxes for the Christmas trade.

To Reorganize Firstbrook Boxes

Working out a plan of reorganization of Firstbrook Boxes, Ltd., Toronto, has now been completed, involving the sale of its assets and revamping the capital structure. Shareholders will be asked to approve measures for sale and disposal by the receiver of all property and assets comprised in the trust deed and mortgage covering the bonds and in accordance with terms of an offer made by the Robert Gair Company, Inc., dated October 17 and amended October 21, 1932.

The plans provide for the incorporation of a new company with authorized capital of 2,000 preference shares of $100 par, and 100,000 common shares of no par value. The new company will purchase all of the assets of the existing Firstbrook Boxes, Ltd. It will assume the bank indebtedness, and will issue new bonds to and from the old bondholders on an equal basis as regards principal and interest. The new company is to issue to and for the benefit of all creditors of the old company whose claims exceed $1,000 non-voting preference shares of the new company of a par value equal to the respective claims, provision being made for the payment in cash of amounts to reduce the claims to even multiples of $1,000.

The Robert Gair Company, Inc., is to sell to the new company certain machinery of a value of approximately $73,000 in consideration of the issue to it of 72,165 new common shares. The new company will issue to the holders of the preference shares of the old company five new common shares for each old preference share. It will issue one new common share for each twenty old common shares. The new company is to pay the costs of reorganization.

Changes in Howard Smith Toronto Office

W. H. Aird, formerly assistant to E. Howard Smith, managing director of the Howard Smith Paper Mills, has arrived at the Toronto office of the company to take over charge of the company's sales in the Toronto district. R. B. Hall will continue in charge of the Canada Paper Company, a subsidiary of the Howard Smith Paper Mills. Harold Evans, who has had charge of the Montreal office of the company, has been moved to the Toronto office where he will look after the sales end of the business, giving increased facilities for shipments.

To Manufacture Folding Boxes

Manchester, McGregor, Ltd., Richmond Street, Toronto, have installed new equipment for the manufacture of folding boxes, in addition to their regular lines of set up boxes, and went into production at the end of October. The company was formerly the Regal Paper Box Co. on John Street, and is one of the older paper box making organizations in the city. The firm reports a fair outlook for business early in the new year although current business, as with all other plants, is inactive.

Price Brothers and Duke Price Power

The failure of Price Brothers & Co. to meet interest payment on its bonds before expiration of the 90 days' grace period allowed under the trust deed renders uncertain the status of the Duke Price Power Co.'s power contract with the news print company. Of the 350,000 horsepower total contracts held by Duke Price Power, Price Bros. had contracts to use 100,000 horsepower, including 40,000 horsepower under a 50-year contract and 60,000 horsepower under a 10-year contract. Duke Price Power Co. is controlled by the Aluminum Co. of Canada, a subsidiary of Aluminum Limited.

At the moment the future of Price Brothers & Co. depends on action taken by the bondholders. A protective committee has been formed on behalf of the bondholders, and this committee, upon deposit of less than 25 per cent of the outstanding Price bonds, may at its discretion instruct the trustees to appoint a manager for the defaulted company or to take such other steps as shall best protect the interest of the bondholders. The policy of the bondholders' committee is not yet definitely known, although a receivership is not likely, according to those in touch with the situation, but in the event of a receivership Duke Price Power would be in the position of a creditor, it is said. Price Brothers had the benefit of a low rate for power under its contract with the power company and if the Price mill continues to be operated it is said to be probable Duke Price will be called upon to supply the power. The only other important power company in the Price territory, Shawinigan Water and Power Company, is said to hold a minority interest in Duke Price power.

Notes and Jottings of the Trade

Many friends in the Ontario paper trade sympathized with Charles E. Allen, of the Fred W. Halls Paper Com-

pany, Ltd., Toronto, in the death of his wife which took place in hospital following a protracted illness.

George C. Winlow, sales manager of the Alliance Paper Mills, Ltd., Toronto, has returned from a business trip to Winnipeg.

W. Woodroofe, who has had charge of the flour sack department of Alliance Paper Mills, with headquarters in Toronto, has been moved back to the mill at St. Catharines, where he will look after the company's output of flour bags.

Forty thousand cords of pulpwood valued at $200,000 and owned by the Bonaventure Pulp and Paper Company, were destroyed by fire at Chandler, Que. Part of the town was also threatened for a time but no damage was done except to the pulp and paper company.

Although Swedish competition has been felt severely in the Australian and New Zealand markets this year, Westminster Paper Company, Ltd., Vancouver, B. C., has enjoyed a fairly good year, according to J. J. Herb, president. Despite a decline in prices, the company was able to improve its position and a dividend of 4 per cent on the capital stock has been declared. The company, which manufactures light weight papers, has been operating full time all the present year.

A. D. Shoup & Co., paper box manufacturers, Carlaw Avenue, Toronto, have taken over the Scott-Martin plant on Richmond street, in that city, and will continue to operate it from its present location in the meantime.

At a recent meeting of the directors of the Ontario Pulp and Paper Makers' Safety Association, interim reports were presented by the secretary-engineer, A. P. Costigane, and Chief Sanitary Inspector Miller of the Ontario Government. The activities of the organization were said to be proceeding in a satisfactory manner.

Pacific Mills' Expansion Program

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., November 5, 1932—Pacific Mills, Ltd., of Ocean Falls, B. C., a subsidiary of Crown-Zellerbach Corporation, and primarily a news print manufacturer, is steadily diversifying its output at a time when news print prices are becoming less and less attractive. It is now preparing to supply British Columbia industries with solid fiber containers. The containers will be adapted for the use of the salmon, sugar and dairy products packers of the province. Changes at the mills at Ocean Falls and at the company's converting plant at Vancouver are called for in connection with the plans for manufacturing new containers. After being pasted and cut the fiber boards will be shipped to the converting plant at Vancouver for manufacture into boxes.

Estimated cost of the converting plant extension is $100,000. Together with changes to the kraft mill and an increase in the capacity of the saw mill by 25 per cent the entire program will entail expenditure of about $350,000.

Eastern Paper Salesmen Meet

The regular weekly luncheon and meeting of the Eastern Division of the Salesmen's Association of the Paper Industry was held on Monday last at the Hotel Roosevelt, New York. Those present participated in an interesting and instructive discussion of prevailing business conditions in the paper industry. A committee was appointed, consisting of R. S. Kellogg, Dr. E. O. Merchant and D. A. Crocker, to arrange for speakers at forthcoming luncheons.

Carthage Papermakers Formed

CARTHAGE, N. Y., November 5, 1932.—A meeting of the directors of the newly formed Carthage Papermakers Inc., was held here this week at which preliminary arrangements for reopening the leased plant of the Carthage Pulp and Board Company were discussed. Plans to reopen the mill were explained a few weeks ago by prominent business men which resulted in the incorporation of the new concern with authority to issue stock. About one-fourth of the number of shares needed to provide operating capital have already been subscribed. It is estimated that $7,500 in working capital in addition to materials valued at $9,000 which remained unused in the plant will be sufficient to allow a resumption of operations. The materials are being turned over to the new concern in exchange for a $5,000 note which will receive attention in case of financial difficulties only after claims of the new stockholders have been met.

At the conference this week W. C. Rommel, of Philadelphia, president of the Carthage Pulp and Board Company, explained the general proposal to resume operations and stressed its advantages for unemployed workers. B. W. Thomas, who is to supervise activities of the new company, discussed the sale of the products to be manufactured and reported that he had just returned from a business trip which uncovered encouraging prospects. Among those named to serve as directors for the purpose of immediate organization are B. W. Thomas, W. J. Cassidy, J. E. Miller, C. J. Slack and E. H. Jones. Mr. Cassidy has been chosen president and C. J. Slack will serve as treasurer. Plans for selling stock were also discussed.

It was explained by Mr. Thomas, general manager of the new concern, that no attempt will be made to undersell other mills despite a reduction of operating costs under the plan. He declared that the output will be small at the start and that unfair sales tactics, made possible by lowered production costs, will not be countenanced. It was also pointed out that the lease provides that in case the Carthage Pulp and Board Company desires to take back the mill or dispose of it by sale it is necessary that the stockholders in the operating company be paid in full before any action is taken.

Stimulating Greater Employment

APPLETON, Wis., November 5, 1932—John L. Barchard, president of the Hummel & Downing Company, Milwaukee, Wis., and F. J. Sensenbrenner, president of the Kimberly-Clark Corporation, Neenah, Wis., are leading a movement in Wisconsin to stimulate greater employment, in line with the program outlined by President Hoover at a recent conference in Washington, D. C.

Mr. Barchard is leading the "share-the-work" movement by which employers are urged to spread the employment as far as possible so as to keep more people at work. Mr. Sensenbrenner is chairman of a group of counties in a program of industrial rehabilitation, the purpose being to bring about repairs, replacements and modernization of industrial plants in preparation for the improvement in business bound to come soon. The program will of itself provide employment and stimulate business to a substantial degree. Replacement of obsolete machinery will be urged.

Among the men assisting Mr. Sensenbrenner are: D. K. Brown, Neenah Paper Company; J. N. Bergstrom, Bergstrom Paper Company; A. C. Gilbert, Gilbert Paper Company, and George Banta, Jr., Banta Publishing Company.

Demand for Paper Satisfactory in Boston

Movement of Bond and Ledger Papers Into Consumption Well Up to Average—Wrapper Paper Situation Practically Unchanged, With Moderate Volume of Orders Transacted — Box Board Market Displaying Strong Undertone

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., November 5, 1932—A fair amount of orders were placed with paper jobbers in and around the Hub last week. There is considerable optimism, especially with those who have had a good consistent business in the last six weeks or so. Some reported a brighter prospect for them in printing papers. Bonds and ledgers are in average demand. The wrapping paper situation is not materially changed, with a fair volume of merchandise moving.

The box board market is strong, with demand continuing specially urgent for material for candy boxes and shoe boxes. The preparation for the Christmas business on the part of candy manufacturers, which usually starts in July, did not begin until considerably later this year, but with a rush, so that demand for boxes for prompt shipment resulted. Thus the board dealers have been having a rather strenuous period filling orders of box makers, including those candy manufacturers who have their own box plants.

A substantial demand for tonnage of mixed papers, old newspapers and corrugated boxes, with advances on all these commodities, was the highlight of the paper stock market. The market remains on an even keel, with orders harder to get, even at the same price. Suppliers have not made any concessions. Advances registered in the grades mentioned above are as follows: No. 1 mixed papers, .15 @ .20, compared with a previous range of .12½ @ .15; old newspapers, .32½ @ .35, compared with a former price of .27½; and corrugated boxes, .20 @ .25, compared with .17½ @ .22½. No. 1 old manila shavings, however, have declined to .50 @ .60 from a previous rate of .65 @ .75. In domestic rags, No. 1 roofing stock has advanced to .35 @ .40, from a previous range of .32½ @ .37½.

There is considerable interest here in the hearings in regard to centralized buying at Chicago and Detroit before the Federal Trade Commission. The plan of centralized buying is not followed in Boston and vicinity.

News of the Trade

The Andrews Paper Company has added a new truck to its equipment, for the delivery of fine paper in the Boston territory, indicating an increase of business in fine papers. The company has also increased its sales force. Robert Treadwell, who was with Carter Rice & Co. Corp. 32 years, is to specialize in fine papers. Olney Washburn, for about fourteen years with the Columbia Rope Company, in the Boston office, is to specialize in twines, but will also sell all papers handled by the Andrews Paper Company.

Frank H. Merrill, president and treasurer of the Andrews Paper Company, and Mrs. Merrill are in New York, where they are celebrating a wedding anniversary.

Carter Rice & Co. Corp., are enclosing blotters on which are listed various lines of printing papers and wrapping papers with communications to printers and wrapping paper prospects. There is a set of three blotters.

J. R. Mathers, for many years a salesman with Storrs & Bement Company, has become associated with Adna C. Denison.

The W. C. Dodge Paper Company, Boston, Mass., carrying a line of fine printers' papers, wrappings, bristols, etc., are now located at their new address, 221 High street. In their larger quarters they are able to offer their customers a greater variety of stock as well as better service. Waldo C. Dodge is president and treasurer; Francis Modricker, vice-president, and E. James Soper, secretary.

Samuel P. Sutphin, president of the Beveridge Paper Company, Indianapolis, Ind., and A. P. Mitchell, salesman for the Riegel Paper Company, New York City, called on the trade last week.

In an article entitled "The Wisdom of 'How'" in the October number of that publication, issued by Tileston & Hollingsworth Company, and edited by A. V. Howland, is the sentence: "The point we would make is that the stories, advice, suggestions and other matters that appear in 'How'—and have been appearing for so many years—are based on practical experience, on the day-to-day happenings in the printing world, on an intimate knowledge of the problems, follies, abilities, success and failures of hundreds of printers with whom we have continual contact." One of the outstanding articles is "The Spirit of New England," pointing out the favorable position of New England's industries today. The number contains analyses of the October calender sheet. It is printed on Milton Text, laid, white, and Milton Cover, terra-cotta.

Farrel-Birmingham Appoints Representative

Farrel-Birmingham Company, Inc., 344 Vulcan street, Buffalo, N. Y., has announced the appointment of E. J. von der Heide as sales representative to handle Farrel-Sykes Gears, Gear Units and Gear Generators in the middle west territory.

Mr. von der Heide is a mechanical engineer, with considerable background of experience in machine and gear design, supplemented by practical experience in shop management. He has developed the most modern instrument for recording noises of all types, especially those produced by gear drives and has worked on the design of some of the most complicated gear drives used in modern machine tools.

From the production standpoint, he has installed standard methods for the design, manufacture and inspection of gears and for the inspection of gear cutters and hobs; and has also developed specifications for materials and heat treatment of gears.

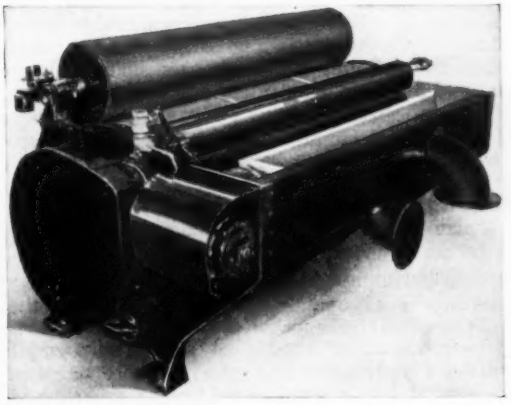
Mr. von der Heide's headquarters are at 824 Miami Savings Building, Dayton, Ohio.

Southern Paper Men Elect Officers

CHATTANOOGA, Tenn., November 7, 1932—At the meeting of the Southern Paper Trade Association the following officers were elected:

A. H. Martin, Martin-Currie Paper Company, Jackson, Tennessee, President; L. M. Hall, Archer Paper Company, Chattanooga, Tennessee, Secretary and Treasurer; J. T. Roach, Roach Paper Company, Little Rock, Arkansas, vice-president.

It gave them a month's payroll to play with



The Bird Save-All, equipped with direct motor drive (as shown) or with belt drive arrangement, offers the simplest and most profitable means for the recovery of fibre.

MONEY needed for sales efforts . . . plant improvements . . . running expenses . . . can come from *operating savings* as well as from income.

One Bird Save-All installation is rolling up a net profit of over $11,000 this year—equivalent to more than a month's payroll.

Another mill is planning an installation that will pay for itself and show a net of over $30,000 during its first year—$30,000, free and clear, that can be applied wherever it will do the most good.

These mills are not alone. During the depression period, papermakers have installed more Bird Save-Alls than in any equal period in our history. In virtually every case, they have paid for the installations out of *part of the savings*—and taken a nice profit right from the start.

Let us help you determine if a similar opportunity exists in your mill.

BIRD MACHINE COMPANY
South Walpole :: Massachusetts

BIRD SAVE-ALL

5455

Philadelphia Paper Market Maintains Gains

William A. Hentz, President of the Paper Association of Philadelphia States That Business Is Better Than Same Time Last Year—Increase in Prices in Coarse Paper Division Expected—Paper Stock Dealers Report Satisfactory Conditions

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., November 7, 1932.—The trend towards better conditions which widely manifested itself in mid-October has in trade opinion—and heads of all the representative houses in the city who were interviewed—continued in these early days of November. Admittedly, the wish is father to the thought, but frankly giving all due credit to the usual seasonal betterment and to the stimulus in paper consumption which very active election printing presses have caused, there still remains a gain. President Hentz of the Paper Trade Association of Philadelphia reports both for the D. L. Ward Company and for associates in the trade organization, considerable better business than for the corresponding period of a year ago. Pretty nearly the full line of fine papers shares in this betterment, and there is manifest an actual increase in prices, certainly a lessening of that very active competition to get orders, which in months passed induced concessions that are no longer found to be necessary. It must be admitted that conditions are still far from satisfactory but the improvement noted in the last few weeks is of such character that in conservative trade opinion it has all the ear-marks of permanency. Political sentiment in Philadelphia is overwhelmingly one-sided but even the most zealous partisan is of opinion that irrespective of the results of the people's choice, removal of uncertainty which has hung over industrial conditions for a number of months will have a strengthening effect. There remains, however, one outstanding plaint in the fine paper field and that is the difficulty of collections. Because of the activities of the Credit Bureau, conducted under the auspices of the Philadelphia Paper Trade Association, through the Paper Trade Division of the Typothetae of Philadelphia, losses from bad credits are very steadily being decreased. General agreement among the trade on the list of printers required by the paper houses to do a cash business has had splendid result.

Price Advances Looked for in Coarse Division

In the coarse paper division, confidence is general that an actual increase of prices is impending. During the week there was no such increase but there was considerable stiffening in quotations. Dealers feel more confidence now in quoting prices and insist that no concession can be made.

The paper stock dealers are much pleased that the slight advance in the very cheapest grades which went into effect ten days ago, has not thus far resulted in bringing out so large amount of stock as to imperil the continuation of those paper prices. Mill demand for stock is increasing, although very slightly, and this, of course, was responsible for the advance in quotation. As pointed out last week, prices in this classification had been so low that many producers of small amounts destroyed their stock because it did not pay the packers to gather it. Now some of this hitherto wasted material is being gathered up but the volume has not been in the past week of large enough amount to soften the prices the packers are willing to pay.

Dill & Collins Changes

Announcement by the Dill & Collins Company of an impending change in its financial arrangements, looking to an early discharge of the receivership, was received with much interest in trade circles and it is looking forward to the detailed statement which has been promised. Vice-President W. R. Maul of the Dill & Collins Company told the PAPER TRADE JOURNAL that this further announcement would not be ready until towards the close of the present month. It is understood, however, that when it does come it will contain a statement of very great interest to the trade, because of the long time career and prominence of the Dill & Collins Company.

Julius Stern Weyl Testimonial

The entire fine paper division of the Paper Trade Association of Philadelphia was represented with an almost one hundred per cent attendance at the testimonial dinner given during the week to Julius Stern Weyl, vice-president of Edward Stern & Co., printers, and recently elected president of the United Typothetae of America. The testimonial took place at the Downtown Club in the Public Ledger Building, and was attended by representatives of more than two hundred printing, engraving and paper firms of Philadelphia. The home town of B. Franklin, master printer, is gratified over Mr. Weyl's selection, for his own sake, and because it gives Philadelphia the honor of five times having given the United Typothetae of America a president, a record not equalled by any other section of the country. William T. Innes, past president of the Philadelphia Chapter, was toastmaster, and among the speakers was E. Lawrence Fell.

Trade Meetings

President Hentz of the Paper Trade Association of Philadelphia announces a meeting on the day after election and of course, because of the importance of the events of the preceding day, this meeting will have particular interest. The association is most anxious to attain its goal of one hundred per cent membership, and although that is almost at hand there yet remains to be added but two firms in order to secure complete success.

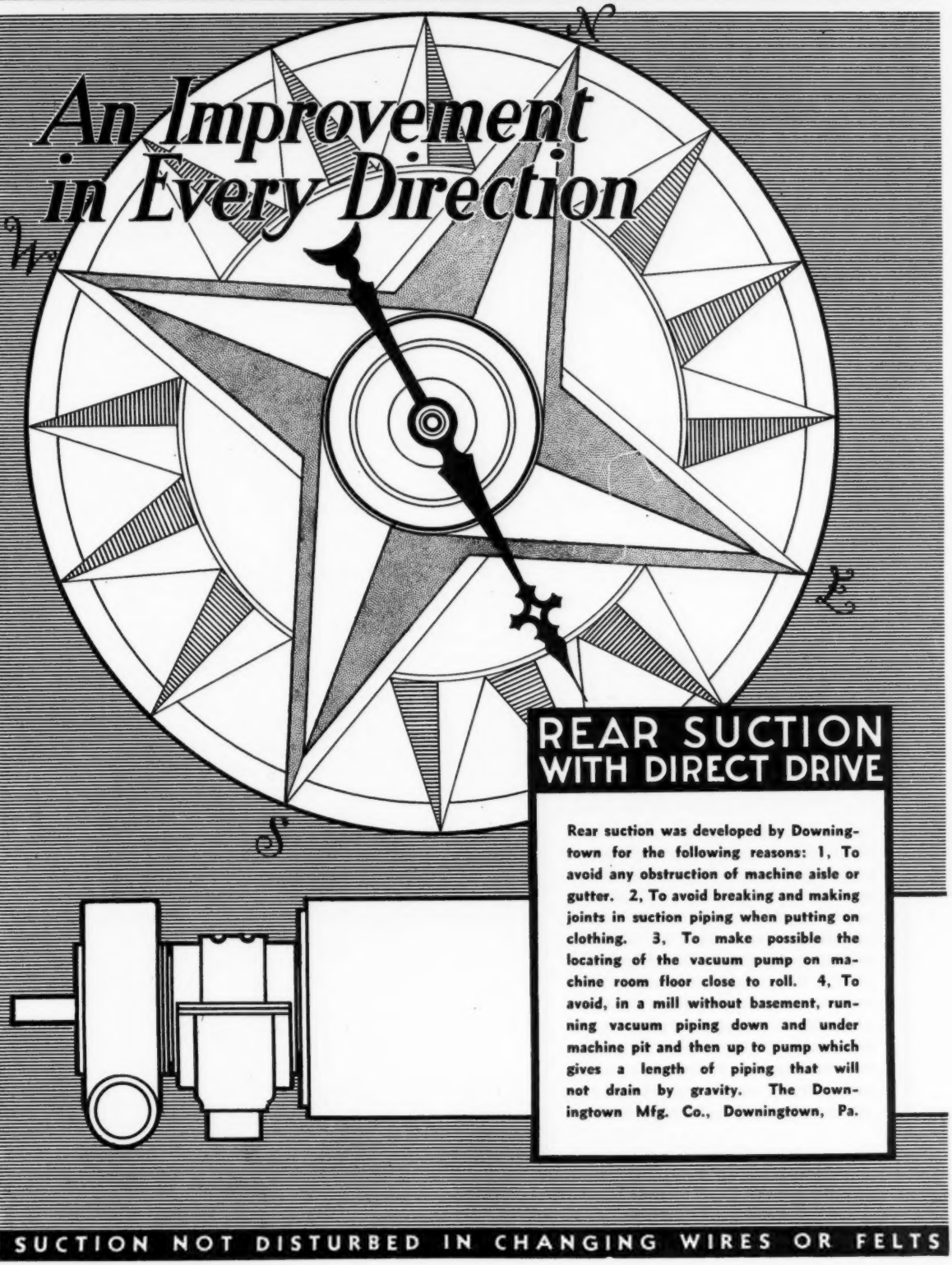
A significant sidelight on the better feeling that exists in the trade is given by the presence at the meeting during the week of the Philadelphia Paper and Bag Institute of a ninety per cent attendance. The meeting was held at the Elks' Club and though no formal addresses were made, there was, of course, a general exchange of trade experiences and prospects, and in this there was a hundred per cent agreement that the worst unquestionably was over, and that the beginning of better times had actually been enjoyed, and there was every reason to believe this betterment was permanent and would be cumulative.

Franklin W. Heath Compiles History

Franklin W. Heath, for decades secretary of the Typothetae of Philadelphia, but in recent years relieved of actual duties, has been engaged during the major portion of that time in the compilation of a history of the Typothetae of Philadelphia with large sections of it devoted to the development not only of the printing trade but of the very closely allied paper trade. The concluding portions of this history are now being arranged, and its appearance as a permanent record of Philadelphia trade history is promised in the not distant future.

DOWNINGTOWN

An Improvement in Every Direction



REAR SUCTION WITH DIRECT DRIVE

Rear suction was developed by Downingtown for the following reasons: 1, To avoid any obstruction of machine aisle or gutter. 2, To avoid breaking and making joints in suction piping when putting on clothing. 3, To make possible the locating of the vacuum pump on machine room floor close to roll. 4, To avoid, in a mill without basement, running vacuum piping down and under machine pit and then up to pump which gives a length of piping that will not drain by gravity. The Downingtown Mfg. Co., Downingtown, Pa.

SUCTION NOT DISTURBED IN CHANGING WIRES OR FELTS

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Bogalusa, La.—The Bogalusa Paper Company, Bogalusa, has awarded contract for structural steel framing for new power house at its mill, in connection with general expansion program, to Ingalls Iron Works, Inc., Birmingham, Ala., and will begin superstructure at an early date. Company will soon award contract for another building to be used for chemical and recovery service at the plant, and for which plans are being completed by the United Engineers & Constructors, Inc., 112 North Broad street, Philadelphia, Pa., engineer for entire program. Expansion and improvements at the plant are reported to cost about $1,250,000, with equipment.

Sandusky, Ohio—The Hinde & Dauch Paper Company, Sandusky, manufacturer of corrugated paper boxes and containers, etc., is arranging for the early opening of its No. 3 plant, closed for a number of years past. Employment will be given to sizeable working force.

Betzwood, Pa.—Taylor & Co., Inc., Provident Trust Building, Philadelphia, Pa., has work under way on construction of proposed new mill on tract of about 43 acres of land at Betzwood, recently acquired. Main unit will be of one-story type, totaling about 60,000 square feet of floor space, and will be equipped for the manufacture of vulcanized fiber products and allied specialties. Project will include a one-story power plant and contracts are being let for equipment for such unit, including a 500-kw. non-condensing turbine unit to the General Electric Company, Schenectady, N. Y., stoker and accessory equipment to the Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa., and for one 467-hp. four-drum boiler unit, with superheater, to the Edge Moor Iron Company, Edge Moor, Del. The entire plant is reported to cost over $125,000, with equipment. Other awards for primary mill machinery will be placed in near future. The new plant is scheduled to be ready for service in February.

Chicago, Ill.—The Stationery Manufacturing Company, 732 Federal street, manufacturer of paper and other allied specialties, has leased a floor in the building at 111 North Canal street, providing large increase in floor space, and will remove plant at once to new location. It is proposed to arrange for increased output. A. T. Olsen is treasurer.

Akron, Ohio—The Superior Latex Products Company, recently organized under direction of S. L. Kramer, Second National Bank Building, W. G. Rodwick and associates, with capital of 250 shares of stock, no par value, is said to be planning operation of local plant for manufacture of latex specialties.

Spring Grove, Pa.—To provide increase in working force, the P. H. Glatfelter Company, Spring Grove, has reduced its working schedule from 12 to 8 hours per day in majority of departments. The plant has been on a 12-hour basis for many years past. Additions will be made to working quota at once.

Morris, Ill.—The Self-Locking Carton Company, manufacturer of paper boxes, cartons, etc., has removed its principal office from 589 East Illinois street to Morris.

Fredericksburg, Va.—The Sylvania Industrial Corporation, 122 East 42nd street, New York, N. Y., manufacturer of transparent cellulose wrapping materials, has awarded a general contract to the Hughes-Foulkrod Company, Schaff Building, Philadelphia, Pa., for proposed new additions to plant at Fredericksburg. The contract calls for the construction of two new one-story buildings, and it is understood that a third will be erected at a later date. The expansion program will provide for a new operating unit at the plant, and present working force of about 500 men will be increased when structures are ready for service. Work is estimated to cost close to $150,000, with equipment. The Ballinger Company, 105 South Twelfth street, Philadelphia, Pa., is architect and engineer. The Sylvania company is now running on a 24-hour production basis, giving employment to regular working force of 500 men, noted. Dr. Frank Reichel is general manager.

Chicago, Ill.—The Chicago Decalcomania Company, 4753 Broadway, recently organized with a capital of $100,000, by Ernest E. Lilliander and Peter L. Morici, is said to be planning operation of local plant for manufacture of decalcomania paper transfers, etc.

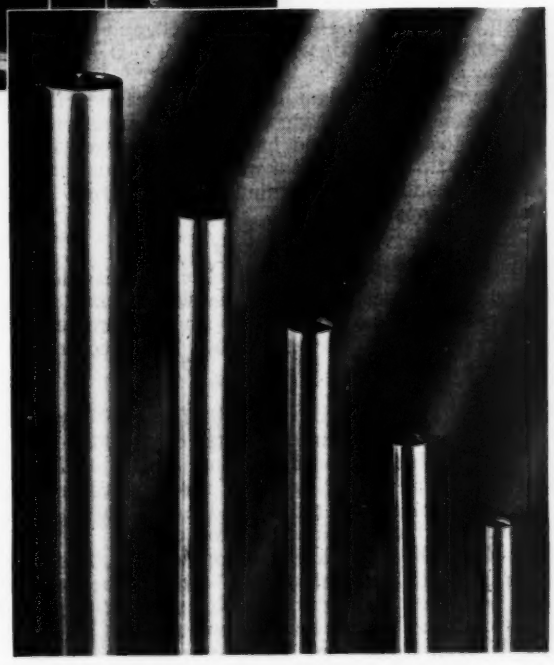
Monahans, Tex.—The Ozark Chemical Company, Cosden Building, Tulsa, Okla., is arranging for the early construction of a new plant on Soda Lake, about 12 miles from Monahans, for exclusive production of sodium sulphate for the manufacture of wrapping paper specialties. Company has secured large tract of land at location noted. Project will consist of several buildings, with power house, pumping plant and other units, and is reported to cost over $300,000, with equipment.

Philadelphia, Pa.—The C. & R. Paper Company has leased the three-story building, 18 x 60 feet, at 1333 Kater street, and will occupy for a new storage and distributing unit. Company will take immediate possession. Headquarters will be maintained at same location.

Fredericksburg, Va.—The Sylvania Industrial Corporation, 122 East 42nd street, New York, N. Y., manufacturer of transparent cellulose wrapping materials, closed bids, October 31, for proposed new addition to mill at Fredericksburg, and will soon award general contract. Work will consist of three one-story units, reported to cost over $150,000, with equipment. It is understood that orders will soon be placed for new machinery and equipment

NATIONAL USS

18-8
USS 17-USS 12
STAINLESS
AND HEAT RESISTING
PIPE *and* TUBES



in modern paper mills!

Here is a material that is highly adaptable to various uses in the paper industry. It not only offers high resistance to corrosion—a vital factor in lines and equipment of a paper mill, but it also gives protection from certain acids. Wherever tubular parts of equipment are subject to staining or corrosive action of cleansing agents or paper-making chemicals, this material will prove highly satisfactory. NATIONAL engineers and technicians will gladly assist in determining the best application of this product to any paper mill equipment. Ask for informative booklet—"NATIONAL U S S Stainless and Heat Resisting Pipe and Tubes".

U S S Chromium-Nickel Alloy Steels are produced under the licenses of the Chemical Foundation, Inc., New York; and Fried. Krupp A. G. of Germany

USS STEEL

NATIONAL TUBE COMPANY
Frick Building, Pittsburgh, Pa.

QUALITY PRODUCTS — Dependable Service

SUBSIDIARY OF UNITED STATES STEEL CORPORATION

PRINCIPAL SUBSIDIARY MANUFACTURING COMPANIES

AMERICAN BRIDGE COMPANY
AMERICAN SHEET AND TIN PLATE COMPANY
AMERICAN STEEL AND WIRE COMPANY
CARNEGIE STEEL COMPANY
COLUMBIA STEEL COMPANY
CYCLONE FENCE COMPANY
FEDERAL SHIPBUILDING AND DRY DOCK COMPANY
ILLINOIS STEEL COMPANY
NATIONAL TUBE COMPANY
OIL WELL SUPPLY COMPANY
THE LORAIN STEEL COMPANY
TENNESSEE COAL, IRON & R. R. COMPANY
UNIVERSAL ATLAS CEMENT COMPANY

Pacific Coast Distributors—Columbia Steel Company, Russ Building, San Francisco, Calif. *Export Distributors*—United States Steel Products Company, 30 Church Street, New York, N. Y.

to be installed. The Ballinger Company, 105 South Twelfth street, Philadelphia, Pa., is architect and engineer for product. Dr. Frank Reichel is general manager.

Wilmington, Del.—The Kenmore Mills of the Jessup & Moore Paper Company, Wilmington, continue with a high score in the safety contest of the Delaware Safety Council, operative for a number of months. In last tabulation issued, the plant stood second on the list in Group A for its exceptional record in safety work by employees. The mills of the company in this district are running on a substantial basis, giving employment to a substantial working quota in different departments.

Chagrin Falls, Ohio—The Adams Bag Company, Cleveland and Mill streets, manufacturer of manila and other heavy paper bags and containers, is placing orders for miscellaneous equipment, including rolling steel doors, sheet metal work, for completion of new storage and distributing building addition, now under way. It will be one-story, 61 x 140 feet. Traveling cranes and mechanical-handling equipment will be installed. Structure is reported to cost close to $35,000, with equipment. The H. K. Ferguson Company, Hanna Building, Cleveland, Ohio, is engineer and general contractor.

Mount Wolf, Pa.—The Superior Paper Products Company, Carnegie, Pa., is perfecting arrangements for the construction of its proposed new plant at Mount Wolf, for the manufacture of corrugated boxes and containers. It is proposed to have the unit ready for service at an early date. Carnegie plant will be maintained in service, as heretofore, the new plant to be used for expansion in output. It will be one-story, 90x180 ft., and is reported to cost close to $40,000, with equipment. D. A. Smith, York, Pa., is architect.

Donnacona, Que.—Plans have been arranged for the reorganization of the Donnacona Paper Company for the benefit of stockholders, and have been approved by the Superior Court. The program will be carried out at once, with mill operations to be continued as heretofore by the reorganized company.

New Companies

Louisville, Ky.—Smith Paper, Inc., Louisville, has been organized under Delaware laws with capital of 34,000 shares of stock, no par value, to manufacture and deal in paper products of various kinds. The incorporators are George C. Sanders, Alvin L. Prichard and Inez Schmitt, all of Louisville.

Newark, N. J.—The Beverly Wall Paper Company has been incorporated with a capital of 1000 shares of stock, no par value, to manufacture and deal in wall paper stocks. Saul J. Zucker, Newark, is the principal incorporator. The company is represented by Lionel P. Kristeller, 810 Broad street, Newark, attorney.

New York, N. Y.—Charles Leopold, Inc., has been incorporated with a capital of 200 shares of stock, to deal in wall paper, etc. Charles Leopold is the principal incorporator. The company is represented by Charles H. Levitt, 37 Wall street, New York, attorney.

Brooklyn, N. Y.—Gerber Brothers Paper Company, Inc., has been incorporated with a capital of $20,000, to manufacture and deal in paper bags and containers. The incorporators are Morris, Frank and Harry Gerber, 393 Hewes street, Brooklyn. It is understood that company will succeed to Gerber Brothers, 47 Scholes street, Brooklyn, paper products, twine, etc.

New York, N. Y.—Uptown Paper and Envelope Corporation, Bronx, has been incorporated with capital of 100 shares of stock, no par value, to deal in commercial paper products, envelopes, etc. William A. Anderson, 215 Gunhill road, Bronx, is the principal incorporator.

Watermark Wins Verdict

HOLYOKE, Mass., November 2, 1932—A watermark devised by White & Wyckoff Manufacturing Company, of this city in 1929, that appeared on a legal document dated in 1927, resulted in a directed verdict for four defendants in the $1,000,000 suit of A. C. Morrison, president of the Majestic Theatre Corporation of Hartford, against four large film associations, charging conspiracy in restraint of trade.

It was the testimony of George W. Mosher of 2 Westfield road, purchasing agent of the White & Wyckoff Manufacturing Company, revealing that the watermark was devised here in 1929 and offered for the market late in that year that brought the trial to an abrupt close yesterday. The lease in question was dated April 13, 1927.

The case had been heard continually for the past four weeks in the United States district court in Hartford. The prosecution had required that time to present the case.

Yesterday State's Attorney Hugh M. Alcorn opened his case with Mosher's testimony and followed it with the testimony of George S. Whitham, paper expert, and manager of the Parker, Young Paper Co., of Lincoln, N. H., who said under oath that his concern had not manufactured that type of paper on which the lease was printed until April, 1930.

Immediately afterwards Judge Carroll C. Hincks directed a verdict for the defendants. The defendants were: the New Haven Board of Trade, the Fox Film Company, the United Artists Corporation and Vitagraph, Inc. They were charged with conspiracy in restraint of trade.

Previously, Mr. Morrison had testified that he signed the lease, but under questioning by Mr. Alcorn, he was unable to say where or when he signed the lease, or who were the witnesses.

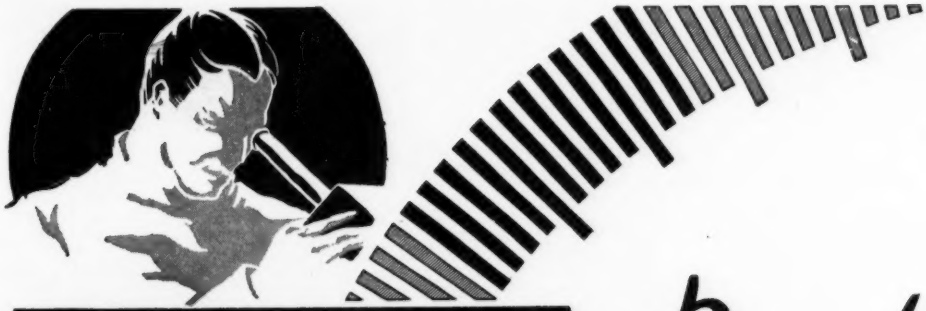
Mr. Whitam's statement was substantiated by the watermark, "Par Value 100 Per Cent" which appeared on the upper left hand corners of the sheet. This watermark, he explained, had been patented by the firm of White & Wyckoff, paper distributors of Holyoke, and the patent rights transferred to Parker, Young. The latter company, Mr. Whitham said, did not receive the rubber bands used in marking the paper until July, 1929.

Paper Men Awarded Patents

[FROM OUR REGULAR CORRESPONDENT]

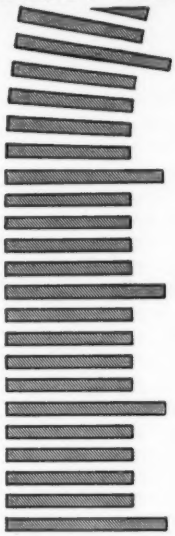
GLENS FALLS, N. Y., November 5, 1932.—A patent on a foil lined bag has been granted to T. M. Avery, of this city, who filed application in 1931. A number of claims for new ideas were allowed in connection with the invention and patent rights have been assigned to the Union Bag and Paper Company, of Hudson Falls, where the inventor is officially connected. The invention is described as a bag or receptacle comprising an outside sheet and a liner and backing therefor portions of which sheet and liner form flaps one of which is folded against the other, the portions of the liner and its backing sheet on one flap and which lie between the folded flaps being perforated to expose a portion of the outside sheet of the respective flap to the outside sheet of the other flap for pasting thereto.

Announcement is also made of the awarding of a patent to W. L. Wright and L. D. Pierce, of Fulton, for designing an apparatus for capping milk bottles. The invention embodies a rotating conveyor which delivers bottles to a fixed station, a heating oven to make paper caps temporarily moldable, and a system for delivering and placing the caps while moldable. Patent rights have been assigned to the Oswego Falls Corporation, of Fulton.



XII Points Rise

in photometer reading with zinc hydrosulphite



U. S. Patent
No. 1,873,924
Canadian Patent
No. 307,440

One of the outstanding advantages of zinc hydrosulphite for bleaching groundwood is its remarkable brightening effect, even on pulp darkened by oxidation or bacterial action. In tests conducted at various Pacific Coast mills, where zinc hydrosulphite is already standard treatment, the new method has produced a rise of as much as 12 points on the Ives Tint Photometer scale with an application varying between 0.5% and 1.5% of the weight of the pulp, when applied to pulp darkened during storage.

The color of fresh Western Hemlock groundwood has been raised as much as 3 points by an application of from 0.2% to 0.5% hydrosulphite; and an application of from 1% to 1½% will raise the photometer reading 5 to 6 points. Naturally the quantity of hydrosulphite required will vary with the degree of brightening to be secured, but only rarely has an application of more than 2% been necessary, and in some cases it has been as low as 0.1%.

In addition to its high bleaching effectiveness, the zinc hydrosulphite treatment has other advantages. Due to the very small quantities required, no special equipment is necessary for application; it may be applied either directly into beaters or mixers, into conveying pipes in a continuous system, or close to the paper machine. It works with such great rapidity that *only a few minutes* is required for treatment, compared to day-long retention periods required by older methods. Heating costs are eliminated, because the treatment works at ordinary temperatures. Since the hydrosulphite has only a slight effect on the pH value of the pulp, corrosion is avoided.

To meet the exacting demands of today's buyers of newsprint, fruit wrap, kraft, and the cheaper grades of magazine and book papers, zinc hydrosulphite provides the means of making a better sheet, at lower cost. We shall be glad to supply technical pamphlets on its application, and experimental quantities are available in drums of 50, 100, and 200 pounds.

●

GREAT WESTERN ELECTRO-CHEMICAL CO.

LIQUID CHLORINE BLEACH AMMONIA ZINC HYDROSULPHITE

9 MAIN STREET, SAN FRANCISCO

Plant: PITTSBURG, CALIFORNIA

New York Office: 225 BROADWAY

SEATTLE - LOS ANGELES

New York Trade Jottings

Summerfield Eney, Jr., of the New York offices of the Champion Coated Paper Company, has been elected to membership of the Printing Crafts Club.

* * *

Japan Paper Company, New York, has just issued an exceptionally interesting booklet on hand made paper, its method and manufacture, as described in the novel "Storm in a Tea Cup," by Eden Philpotts, the well known English author.

* * *

J. Arthur Woods, of W. L. Jones, Inc., paper and twine merchants, of 116 Prince street, New York, has completely recovered from the illness which kept him away from the trade for six months, and has again joined the sales staff of the company.

* * *

Collins Manufacturing Company, makers of loft dried papers, of Holyoke, Mass., have opened New York offices at 452 Lexington Avenue, in charge of William G. Bryan, formerly manager of Whiting & Cook, Inc., Chicago. The telephone number is Murray Hill 2-2181.

* * *

I. H. Reid, New York District Manager of the Groveton Paper Company, with offices at 299 Broadway, announces that Otto Renner is now the company's representative in Philadelphia. Besides covering the Philadelphia territory, Mr. Reener will also cover the cities of Baltimore, Washington, Richmond and Norfolk.

* * *

Park Tissue Mills, Inc., manufacturers of toilet tissues, with sales and executive offices at 4077 Park Avenue, New York, announces the addition of Al Corman to its sales staff. Mr. Corman has had twenty years experience in the paper business and will cover the paper jobbing trade in Greater New York.

* * *

The Seymour Paper Company, Inc., of 220 West 19th street, New York, has in stock a full line of "Anaconda Cover" in white and thirteen colors, in basis 50 lb. and 65 lb. for quick delivery to the paper trade. This is one of the "Better Values in Sulphite Papers" manufactured by the Groveton Paper Company, Inc., of Groveton, New Hampshire.

* * *

The Fourteenth Exposition of Chemical Industries, which is to be held at the Grand Central Palace, New York, has been postponed to the week of December 4, 1933. The management believes that the new dates will allow exhibitors more latitude in their plans through coming at a time when more generous outlay, both of time and money, on exhibits may seem more justified.

* * *

C. H. Marshall, testing engineer, has joined the technical staff of Testing Machines, Inc., 314 Broadway, New York, who are well known in the paper trade through their agency for the Schopper Standard Paper Testers. Mr. Marshall recently was engineer of tests with the Bell Telephone Laboratories, and is well known in the American Society for Testing Materials.

* * *

The International Power and Paper Company has been sustained by the United States Customs Court in protesting against duty assessed at 30 per cent on strips of pulpboard trimmed from the sides of pulpboard sheets in cutting them to commercial sizes. In upholding the claim of duty at 10 per cent as waste not specially provided for, the court declared that it manifestly was not the intention of Congress to include waste at the higher rate because it was in strips.

* * *

Howell H. Howard, treasurer of the Aetna Paper Company, Dayton, Ohio, Howard Paper Company, Urbana, Ohio; and the Maxwell Paper Company, Franklin, Ohio, sailed from New York for Europe, October 29, on the *Europa*. Mrs. Howard is accompanying Mr. Howard and he expects to combine both business and pleasure in that he is visiting pulp and paper mills in Sweden and other countries. They will end their trip in Paris and London, returning to America before Christmas.

* * *

The regular weekly luncheon and meeting of the Eastern Division of the Salesmen's Association of the Paper Industry was held at the Hotel Roosevelt, New York, on Monday last. R. S. Kellogg, secretary of the News Print Service Bureau, analyzed the changes in the circulations of leading newspapers in an interesting and instructive manner and demonstrated that circulations had held up very well despite abnormal business conditions, radio and other factors. S. P. Weston, the well known newspaper engineer and consultant, ably supplemented Mr. Kellogg's remarks and gave an informative talk.

United Container Association To Meet

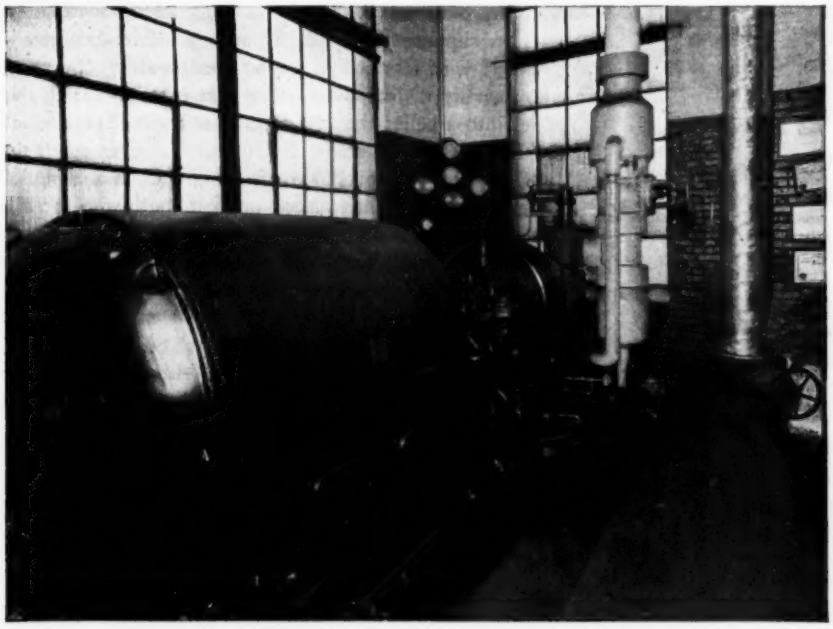
The regular bi-monthly meeting of the United Container Association will be held in the Mezzanine Parlor of the Commodore Hotel, New York, on Tuesday and Wednesday, November 15 and 16. This meeting will be of unusual interest as it commemorates the first anniversary of the organization of the association, which took place in the Commodore Hotel on November 17, 1931.

In addition to routine business, comprising reports of committees, activities of the bi-monthly period, etc., which will be covered in the committee meetings on Tuesday and Wednesday, there will be a timely address by William Walker Orr, secretary of the New York Credit Men's Association, New York City, on "Credits Today", at the general meeting of the association on Wednesday afternoon.

On Tuesday evening, the First Anniversary Dinner and Theatre Party will be held. The dinner will be an annual feature hereafter, and on this occasion will occur in a private dining room in the Commodore Hotel, and will be followed by a theatre party at the Chanin Theatre. At the luncheon on Wednesday at 1:30 P.M., there will be the usual forum around the table, with talks on timely topics of interest to the mills and container manufacturers, comprising the membership of the association. Altogether it is expected that this will be one of the best meetings the association has held, in the matter of interest, and because of its anniversary nature, it is hoped that it will be one of the largest in point of attendance.

Up State Paper Mills Active

ALBANY, N. Y., October 22, 1932—Many of the leading paper mills in this district are running near capacity and the outlook is claimed to be good for the future. Increased production has been placed in effect in several plants in recent weeks and orders are being booked ahead. The Albany Felt Company is operating on a schedule of five days weekly with a near normal force. At the plant of the Eastern Tablet Company a schedule of six days weekly or less as orders demand is being carried out while the office force is working on a basis of five days a week. The plant of F. C. Huyck & Sons is also observing a schedule of five days a week with the majority of employees steadily employed.



1000 KW Terry Turbine Generator Unit produces low cost power as a by-product of heating steam.

TERRY

for TURBO-GENERATORS

Terry Generator Units merit careful consideration by the prospective purchaser of power units.

These units are individually designed and proportioned so as to operate most efficiently under the plant conditions. They are the result of over thirty years of successful experience in the manufacture of steam turbines.

We are prepared to make attractive propositions on high, low or mixed pressure, or bleeder type units in all capacities up to 1000 KW.

The TERRY Steam Turbine Co.

TERRY SQUARE, · · HARTFORD, CONNECTICUT

TURBINES, GEARS SHAFT COUPLINGS

T-1097

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THE ELECTION

Franklin D. Roosevelt was elected the thirty-second president of the United States on Tuesday by a surprisingly impressive vote. Inasmuch as the electorate determined on a change in the administration in Washington, we are glad that this will of the people was indicated so decisively, for after all, these past few years have been times of severe trial and a change, whether for better or worse, will for the time being, at least, cause many people to look to the future with renewed hope. This, we believe, will be among the fortunate results of the election because it will provide new fortitude to withstand the rapidly approaching winter which thinking people, regardless of the results of the election, have for some time past believed will be one of considerable stress.

The paper industry has in this campaign, naturally, been concerned with what might be done about the tariff in the event of Democratic success. The industry wants no lowering of duties on paper. There have been too many unpleasant experiences in the past when this has happened. Outstanding among these experiences was the lifting of the duty on news print in 1911 which virtually made a present of our great news print industry to Canada. But, ironically, this happened in a Republican administration. The bill was signed by President Taft under the influence of the powerful daily press, Republican and Democratic alike.

But perhaps there is less reason for fear regarding a drastic tariff revision than is supposed by some. Writing on this subject in the *New York Herald Tribune,* Mark Sullivan, one of the most experienced political observers in the country, says that "The apprehension is unfounded. There will be no general tariff revision downward. The Democrats may justly be charged with something about the tariff, with so harsh a thing as muck-raking perhaps, but not with the determination to change it. The Democrats, by their attacks on the existing tariff, have led persons to suppose they will, if successful, reduce it. Or, to put it with less odium to the Democrats, many persons who heartily dislike the existing tariff have worked themselves into a belief that the Democrats will change it. But the Democrats will not.

"Governor Roosevelt, in his campaign, has denounced the existing tariff, has placed upon it the blame for all of this country's ills and most of the world's. But nowhere has he said, 'If elected I will immediately initiate a general tariff revision downward.' On the contrary, he has specifically assured the farmers that their part of the tariff will not be touched, and the farmers' tariff is two-thirds of the whole. Elsewhere he has in effect given the same assurance about the tariff on manufacturers.

"If Governor Roosevelt, in the event of his election, will not initiate a general tariff reduction, certainly the Democrats in Congress will not. The sum of individual Democrats in Congress, each with a favored industry in his district, is as opposed to general tariff revision as the Republicans. Whatever apprehensions business may have about Democratic success, fear of general tariff revision downward need not be one of them."

These views of Mr. Sullivan's sound reasonable. The PAPER TRADE JOURNAL hopes they are correct. Paper men have reason to be encouraged by them more especially as paper interests certainly cannot be charged with log rolling when the Hawley-Smoot bill was framed and paper rates at present are not unreasonable in any respect.

Predicting trade gains as likely after the election, the *New York Times* presented among others the following statements from representative business leaders. In presenting these views the *Times* said:

"Assurance that the business upturn which started in mid-July will not be halted, no matter how the election comes out, was voiced by A. W. Robertson, chairman of the board of the Westinghouse Electric and Manufacturing Corporation and chairman of the national committee on industrial rehabilitation.

" 'Although politics is an important factor in business,' he continued, 'its relative importance can best be judged by the fact that the business upturn started in the period when political uncertainty was at its highest peak and has continued despite the campaign. That fact proves that when business conditions are right trade will improve regardless of politics.'

"The drive conducted by Mr. Robertson and his aides in their efforts to persuade business men that the time is propitious for the expenditure of money on plant improvements and on the purchase of new equipment will continue after election, he added.

"The influence of politics upon general business operations is subject to definite limitations, and regardless of the outcome of Tuesday's balloting business recovery will continue without serious interruption, Spruille Braden, vice-president and general manager of the Rehabilitation Corporation, said. Building operations and the movement for spending money for improvement of business proper-

ties will continue to grow no matter which party takes power, he said.

"Mr. Braden expressed the belief that Mr. Hoover, in event of a Democratic victory, would do his utmost to cooperate with his rival and help eliminate any uncertainties which might grow up in the period between the election and inauguration of Mr. Roosevelt."

These are patriotic expressions. They should stimulate every business man to do his share in encouraging the gains that have been made recently in trade and industry and increase his confidence in a continued recession of the depression under the administration of Mr. Roosevelt until the complete equilibrium of the country has again been established.

Protection for Paper

The PAPER TRADE JOURNAL has been requested to reprint the following editorial which appeared recently in the Daily Times of Watertown, N. Y., under the caption of "Our Paper Industry Cries Out for Protection." This request is gladly complied with as the editorial brings out a number of facts which are not commonly appreciated:

"Washington should take some steps immediately to save our paper mills. What it can do is not clear but there must be something within the power of the federal government to halt the destruction of an industry that must be saved if American publishers are to be safeguarded in the future.

"Before the war United States was making two thirds of our news print. At the present time we are making only one third. The industry is being strangled both by free print paper from abroad and by the unfavorable rate of exchange which operates 15 per cent in favor of Canadians and as high as 50 per cent in favor of some of the European countries where currency is seriously demoralized.

"American publishers have made a serious mistake in the past. They have battled away against a protective tariff on paper. They intimidated congress. The result is we have free print paper being rushed in here from abroad and it is absolutely impossible for the American mills to compete on anything like a favorable basis. The condition has been made particularly bad since European countries went off the gold standard and when the rate of exchange is so against the United States.

"What will happen? Just this: If this situation continues every mill in the United States will be closed, the market will be under the complete control of Canada and European countries, particularly the Scandinavian countries, and then these foreign companies will shove up the price of print paper and the publishers will be punished accordingly.

"Necessarily paper mill securities issued in connection with American properties have gone off seriously. It has been necessary for the mills to pass their dividends in many instances and unless something comes to correct the conditions soon the entire industry in the United States will pass out of the picture. What can be done under the circumstances? It is believed that the president can find authority to place a tariff on paper through proclamation in view of the extreme conditions. This step would be warranted by reason of the fact that when Great Britain went off the gold standard and the depression of the currency of foreign countries followed the struggle of the American manufacturer became desperate. The odds are so against him that an extreme measure of this kind would be warranted in order to save him and preserve for America an industry which it so much needs.

"Some concerted action on the part of the paper mill men in the United States should be taken at once and we believe that the newspaper owners themselves who have opposed a protective tariff in the past would see the reasonableness of it today and withdraw their opposition in order to save from extinction this American industry so essential to their future welfare."

Trimbey Machine Works Busy

[FROM OUR REGULAR CORRESPONDENT]

GLENS FALLS, N. Y., November 1, 1932—Improved conditions are reflected in the many orders being turned out by the Trimbey Machine Works. An enlargement of the working force has been made because of the many contracts on hand for paper mills in this country and Canada and indications are that capacity production will continue for some time. The company is also making extensive changes in the equipment at the Corinth branch of the International Paper Company which is being rebuilt for the production of high grade book paper. Representatives of the concern are now spending several weeks at Longview, Wash., supervising the installation of a pulp screen recently made for the Longview Fibre Company.

During the past week a shipment of a metering system and three consistency regulators was made to a paper mill in Budapest, Germany. Other orders on hand include a metering system and a consistency regulator for shipment to Hamburg, Germany; a pulp screen to Van Gelden Zonen, Renkum, Holland; and a metering system and two consistency regulators to Helsingfors, Finland, and a consistency regulator to Hamburg.

Westminster Mill Makes Good Showing

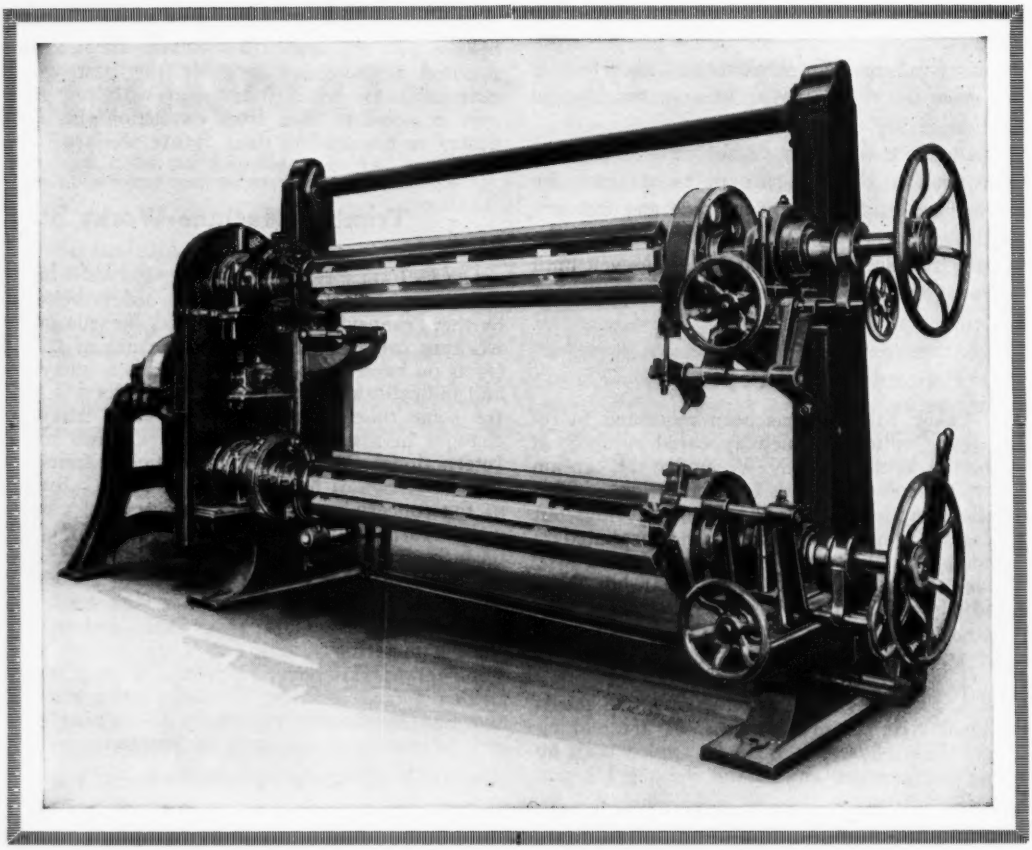
VANCOUVER, B. C., October 15, 1932—J. J. Herb was recently re-elected president and general manager of the Westminster Paper Company, Ltd., at the general meeting held in the mills at New Westminster, B. C. Mayor A. Wells Gray was elected vice-president, Harry Lord, secretary-treasurer (re-elected) and the following directors were appointed: Fred Smith, Charles Henley, S. A. Lake, Alderman John Peck, J. G. Robson and Francis Wright.

During the fiscal year ending July 31, 1932, the company's net profit was $19,970 as against $21,336 for the previous year, but this year it was able to pay a 4 per cent dividend, repay a bank loan, improve its operating capital account, and show a greater surplus account at the end of the year. This was made possible by carefully planned economies and more progressive sales work.

New Machine for Anglo Mill

Nearly four hundred tons of paper-making machinery recently left Bury, Lancashire, for shipment to Newfoundland, part of a large order which a local firm, Charles Walmsley & Co., are completing for the Anglo Newfoundland Development Company. The contract, which is valued at £90,000, was secured in the face of strong competition, states *Industrial Britain.*

When assembled, the machine will be capable of producing 120 tons of news print per day and is designed to operate at a maximum speed of 1,200 ft. a minute. Thirty-two heavy-capacity railway wagons had to be requisitioned to load the machinery, which was conveyed to Purfleet, Essex, and then shipped to Newfoundland.



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Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

Bleaching of Ground Wood *

By W. Hirschkind[1]

The treatment of groundwood or mechanical pulp to improve its color, is a problem which has occupied the attention of many investigators. Since groundwood contains all of the constituents of the wood, a bleaching process applicable to this material must differ essentially from the bleaching of chemical pulp. Chlorine, hypochlorites or other oxidizing agents such as are used in bleaching of chemical pulp are out of question since they would necessarily have to remove about 50 per cent of the constituents of the groundwood before any improvement of the color could be obtained. While bleaching of chemical pulp consists principally in the elimination of lignin and other non-cellulose materials, bleaching of groundwood must respond to the widely variable conditions causing its color.

These are:—(1) Natural Color of the Wood: It is a well known fact that various woods differ widely in color. Eastern spruce is brighter than western spruce. Of western woods, cottonwood perhaps is the brightest followed by spruce and then by the most common of western woods, hemlock. Groundwood made from western hemlock is usually slightly yellow, incorporating in western newsprint a gray or yellow shade not present in eastern newsprint.

(2) Changes of Wood to Atmospheric Conditions: On exposure to weather, wood darkens and gradually disintegrates. This is due to sunlight, oxygen, temperature and moisture. Certain species turn gray and acquire a silky luster. The brown color is due to the transformation of the cell membranes into humus. Stains of various colors are occasionally produced by changes in the wood due to atmospheric conditions. Naturally wood discolored in such a manner, gives a dark or discolored groundwood.

(3) Iron Content of Wood: The iron content of groundwood may change materially due partly to the iron content of the wood itself, due partly to the iron pick-up during the process of grinding. The tannin contained in the wood will react with iron, forming iron tannates, usually of grayish color.

(4) Bacterial Decomposition of Wood: Bacteria and fungi attack either the wood or the groundwood during storage, causing grayish, brownish or even deep black discoloration. The action can be further accelerated by the simultaneous presence of iron and sulphur. A certain organism belonging to the group of sulphur bacteria reduces sulphur containing compounds with production of hydrogen sulphide which in turn unites with iron to form black iron sulphide.

(5) Effect of Higher Temperatures on Wood: High temperatures usually cause a brown discoloration as it is often noted when the temperature during the grinding operation rises too high.

Remedies for Discoloration

There are means available which remedy the discoloration due to one or the other causes. For instance oxalic acid is an effective means to combat discoloration due to iron and iron tannates. A decrease in the pH due to acids or acidic materials usually brightens the natural color of the wood. Alum for instance has such an effect. There are, however, very few materials which lend themselves to treatment of the various forms of discoloration.

The only known method by which the color of groundwood, due to a number of causes, can be improved consists in a treatment with reducing sulphur compounds such as sulphur dioxide, sulphurous acid solution and sodium and calcium bisulphite solution. This is not a bleaching process in the ordinary sense as the coloring matter is not destroying but masked temporarily and on exposure to air a slow reoxidation takes place by which the stock reverts gradually and takes on a grayish appearance.

The method is at present carried out in two ways: The fiber is treated with a 2 to 3 per cent solution of calcium or sodium bisulphite in quantities corresponding to 2½ per cent of the weight of the dry fiber as bisulphite. The fiber is allowed to stand for some time in this solution, after which the excess is removed by a washing process.

The second method is to spray the fiber as it is taken from the wet machines with bisulphite solution in similar quantities as above and allow the brightening to take place in the moist laps.

For the successful working of this process Bragg[2] states that the following points must be observed; close regulation of moisture on the wet machine or in the engine; use of good, sound wood only, from spruce, balsam or poplar; carefully controlled grinding conditions; use of sodium bisulphite of definite and constant strength; temperature maintained at 40 to 60 deg. C. during application; frequent testing of bleached pulp from the wet machine for acid residues, indicating that the bleaching solution should be reduced; and careful protection of all iron work with a good acid-resistant paint.

For most applications the process is too cumbersome for

* Presented at the fall meeting of the Pacific Section of the Technical Association of the Pulp and Paper Industry, Seattle, Wash., October 21-22, 1932.

[1] Member TAPPI, chief chemist, Great Western Electrochemical Company, San Francisco, Cal.

[2] Paper, April 26, 1932.

the following reasons: (1) The quantities of sulphur dioxide or its compounds used, run up to several per cent of the weight of the pulp which necessitates the removal of the reaction products by washing. (2) The materials are all acid in character, thereby affecting the pH of the pulp and causing corrosion of metal equipment. (3) An elevated temperature is necessary to get the maximum results besides a considerable retention period which sometimes amounts to 24 hours.

Hydrosulphites as Bleaching Agents

In an endeavor to secure bleaching reagents more effective than bisulphites and free from the obvious disadvantages of these compounds it is evident that the principle of the method cannot be changed and that reducing agents are the only possible solution. There exists one type of reducing agents which have been used in the past to some extent for stripping of fabrics for removal of dyes. They are the so-called hydrosulphites (the correct chemical name is hyposulphites) of the composition $R_2S_2O_4$ (R represents a monovalent metal) but of an assymetric constitution, which are formed by reduction of sulphur dioxide or bisulphites. They far exceed the latter compounds in both reducing power and rapidity of reaction. For instance hydrosulphites convert indigo and a number of organic dye stuffs rapidly to colorless substances while sulphur dioxide and bisulphites have no effect.

Hydrosulphite added to groundwood, either fresh or discolored from any of the above mentioned causes, immediately produces a bleaching effect far beyond anything obtainable with bisulphites even under most favorable conditions. The quantities necessary are usually very small, and striking results have been produced by an application of a few tenths of a per cent of the weight of the pulp. The hydrosulphites themselves, or their decomposition products, are only slightly acid in character and therefore do not change the pH of the pulp materially. The problem of corrosion so pronounced in case of the bisulphite treatment is thereby largely avoided. The small quantity involved also obviates the necessity of washing the pulp for the removal of the bleaching chemicals. The reaction is usually completed at ordinary temperature in 5 to 10 minutes which makes it possible to apply this treatment to the pulp during its regular flow through mixers or beaters or even pipe lines on the way to the machines.

While sodium hydrosulphite is the best known representative of this group, we have found the zinc compound to be more advantageous for this purpose. Zinc hydrosulphite is a white powder, fairly stable in the atmosphere and completely stable in absence of air and moisture. It dissolves but slowly in water and is therefore preferably added as a solid. The reaction with the pulp is, as already mentioned, very rapid and completed at ordinary temperature in less than 10 minutes. The products of the reaction are for the most part water soluble salts, zinc sulphate and zinc thiosulphate which do not affect other conditioners added to the pulp such as alum, dyes, sizing, etc. The quantity necessary varies according to the desired effects and runs usually between .1 and 2 per cent of the weight of the pulp. We rarely know of an application larger than 2 per cent and the maximum brightening effect is usually achieved at a lower percentage. The color of fresh groundwood such as western hemlock can be raised several points on the Ives Tint Photometer scale by an application of .2 to .5 per cent hydrosulphite. The results are particularly striking on groundwood which has become dark during storage from various causes.

An application varying between .5 and 1.5 per cent of the weight of the pulp may raise the photometer reading from 5 to 12 points.

It must be remembered that the bleaching effect of hydrosulphites is still due to a reducing reaction with the typical characteristics of a reducing bleach. Reoxidation and reversion of color however, is greatly minimized once the color is permanently fixed in the paper. It is therefore always advisable to add the hydrosulphite as close to the paper machines as practical. Hydrosulphites have an effect on aniline dyes which can be overcome by allowing 5 to 10 minutes to elapse for the completion of the hydrosulphite reaction before the dyes are added.

Where batch mixers or beaters are used the hydrosulphite is conveniently added in weighed amounts during the mixing. Where continuous mixing is used the hydrosulphite is preferably fed by means of dry feeders into the pulp stream.

Benefits of Hydrosulphite Treatment

The advantages of the hydrosulphite treatments can be enumerated as follows: (1) Hydrosulphite acts very rapidly even at low temperature. The entire bleaching time does not exceed ten minutes.

2—Hydrosulphite produces a brightening effect far beyond any possible with sulphur dioxide or bisulphite.

3—Hydrosulphite gives striking results on very dark and discolored woods. Groundwood pulps which have been stored in the open and have been darkened cannot only be restored to the original color but beyond.

4—The quantity of hydrosulphite necessary depends on the desired effect and often does not exceed a few tenths of 1 per cent. This obviates the necessity of washing for removal of the reaction products.

5—Hydrosulphite does not change the pH of the pulp during the brightening process and can be carried out in ordinary equipment.

The principal applications of this treatment are in brightening groundwood both fresh and stored for newsprint manufacture, for manufacture of specialties such as groundwood book papers, white wrapping paper, etc. Many tons of Pacific Coast newsprint are treated daily. It has also been possible by this treatment to increase the percentage of groundwood in specialty papers where strength is no particular object and also to substitute unbleached for bleached sulphite pulp in mixture with groundwood owing to the marked increase in color of the latter.

Hydrosulphite will brighten kraft pulp to some degree. It has also a marked effect on sulphite pulp, although not to the extent of that on groundwood or kraft.

Permanence of Esparto Book Paper

An English esparto book paper recently tested at the Bureau of Standards was found to compare favorably in permanence characteristics with the ordinary book papers made from wood fibers. The fiber purity was quite good; the alpha cellulose was 81 per cent and the copper number 1.7. It retained 40 per cent of its folding endurance when subjected to the heat test. The esparto fiber book papers are manufactured and used extensively in England, where there is considerable controversy over their permanence as compared with that of the wood fiber book papers. Esparto is a grass fiber. The paper was secured through the assistance of the British Library Association, and was said to be representative of the average quality of such paper.

Action of Ammonium Sulphite on White Fir*

By W. S. Hepher[1] and E. C. Jahn[2]

Introduction

Pulping wood with ammonium sulphite falls into that class of processes commonly known as semi-chemical pulping. Semi-chemical processes involve a cook with a relatively mild cooking agent, such as sodium sulphite or sodium carbonate, followed by mechanical disintegration. The product of the semi-chemical process is termed "semi-cellulose" which indicates that the pulp contains a large percentage of lignin.

A good review of the earlier literature on semi-cellulose and semi-chemical pulping and on the pulping of wood by soluble sulphites and their bisulphites is given by Rue *(15, 16)*.

Semi-chemical pulping processes have received considerable research attention because of the possibility of securing high yields of pulp of good fiber strength from a wide variety of species. Of all the methods of semi-chemical pulping that involving the use of sodium sulphite has been most extensively studied. Bradley and McKeefe *(3)* have developed a commercial process using sodium sulphite alone or with other chemicals. A review of Bradley and McKeefe's patents prior to 1925 is given by Rue *(16)*.

Schwalbe and Lange *(19)* describe a method for the production of semi-cellulose by digesting pine chips with sodium sulphite solution for 8.5 hours at 170 deg. C.

Investigators *(6, 7, 8, 14, 17)* at the Forest Products Laboratory at Madison, Wis., have developed a semi-chemical process, known as the neutral sulphite process. Sodium sulphite is the active cooking agent and sodium bicarbonate is added to maintain neutrality during the process. After cooking, the softened chips are broken down in a rod mill. Yields of pulp of over 70 per cent are obtained. The process seems especially applicable to the use of sawmill and other forms of wood waste. The product is of good quality for wrapping and medium grade papers and for fiber boards.

Rawling and Staidl *(14)* and Bray and Eastwood *(6, 7)* have published papers on the chemistry of cooking wood with sodium sulphite. They found that the removal of lignin was more rapid at higher temperatures, but even at 185 deg. C. a large amount remained in the fibers. Above 170 deg. C. a large loss in cellulose was encountered. Temperature has a marked effect on the rate of delignification, the velocity a little more than doubling for every increase in 10 deg. C. over the range studied.

Aronovsky and Gortner *(1)* have also studied the cooking of wood with sodium sulphite. They conclude that sodium sulphite is a good strong pulping agent which partially to completely pulps the wood.

Although considerable work has been done on pulping with sodium sulphite, comparatively little has been done with ammonium sulphite. Some work has been done on methods of pulping with ammonium sulphite but no study has been made of the chemistry of the process.

Ammonium sulphite as a pulping agent offers interesting possibilities because of its properties. Its two constituents, ammonia and sulphur dioxide, are both gaseous, and the salt may be readily decomposed into its components. In solution the salt hydrolyzes and reacts alkaline. Addition of either ammonia or sulphur dioxide should alter the action of the salt on wood.

Previous work on pulping with ammonium sulphite is reviewed by Rue *(16)*. Braun *(4)* describes a method of cooking with neutral ammonium sulphite to obtain a good yield of easily bleachable pulp. Brech and Tyborowsky *(2)* add ammonia in excess to the neutral ammonium sulphite enabling a lower cooking temperature and lessened attack on the cellulose by acids formed during the process. Sammot and Merrill *(18)* digest chips by means of ammonia gas, sulphur dioxide gas, followed by mild mechanical disintegration. Marusawa *(11)* claims that a high grade pulp of good yield may be obtained by pulping with ammonium bisulphite, with or without sulphurous acid or a soluble sulphite.

The work of this present investigation is of a preliminary nature. Its principal purpose is to determine the action of ammonium sulphite on wood under varying conditions of temperature, pressure, and amount of chemical.

Lowland white fir (Abies Grandis) was used because as a raw material for pulp it has many advantages such as fairly long fiber, white color, and freedom from resins. This species is distributed over a large area in Northern Idaho.

Experimental Work

The experimental work was divided into several groups of studies which may be classified into the following series of cooks:

Autoclave Studies

A. Cooks using sawdust. To study the effects of the variables time, temperature, and amount of chemical. Pressure released at the end of each cook.
   Time: 6 hours, temperature: 170 deg. C., amount of chemical: from 15 to 100 per cent.
   Temperature: 170 deg. C., amount chemical: 25 per cent., time: from 2 to 8 hours.
   Amount of chemical: 35 per cent, time: 4 hours, temperature: from 150 to 180 deg. C.

B. Cooks using sawdust. Using optimum conditions for lignin removal, to study the action of ammonium sulphite on wood.

C. Cooks using commercial chips. To determine the conditions under which chips may be disintegrated.

Digester Studies. To determine pulp yields using a larger apparatus.

Materials

The sawdust used in these experiments was cut from an air dry sound lowland white fir (Abies Grandis) log 10 inches in diameter. The sawdust was screened, that por-

TABLE I

ANALYSIS OF LOWLAND WHITE FIR (ABIES GRANDIS)

	Per cent
Cold water soluble material	1.26
Hot water soluble material	1.94
Ether soluble material	1.93
Alcohol-benzene soluble material	3.26
Lignin (by 72% H_2SO_4)	29.50
Pentosans (total)	10.89
Cellulose (total)	56.00

* Presented at the fall meeting of the Pacific Section of the Technical Association of the Pulp and Paper Industry, Seattle, Wash., October 21-22, 1932.

[1] Graduate Scholar 1931-32, School of Forestry, Univ. Idaho, Moscow, Ida. The larger part of this work was taken from a thesis presented by W. S. Hepher in partial fulfillment of the requirements for the degree of Master of Science in Forestry.

[2] Member TAPPI, Assoc. Prof. Forestry, Univ. Idaho, Moscow, Idaho.

tion being used which passed through a 20 mesh screen and was retained on a 60 mesh screen. Chemical analysis of this wood by Plunguian *(13)* showed the characteristics given in Table I.

The pulp chips used in these experiments were commercial sulphite chips from lowland white fir wood[3].

The ammonium sulphite used was in the form of c.p. crystals, $(NH^4)_2\ SO_3.\ H_2O$. The amounts used were calculated on the anhydrous basis.

Apparatus

The pulp reactions were carried out in a small autoclave and in a larger rotary digester.

The autoclave, Fig. 5, is of chrome-nickel steel of 25 per cent chromium content and 10 per cent nickel. This vessel can be used for investigations covering a wide range of chemicals and conditions. The autoclave has about 900 cc. capacity.

The autoclave was heated by immersion in an oil bath, Fig. 6, heated by two resistance coils (total 1250 watts) and one 300 watt knife heater. Temperature control was maintained to within 0.5 deg. C. by a three heat switch and a DeKhotinsky bimetallic thermoregulator.

The final series of cooks was carried out in a rotary digester, Fig. 7. This vessel is made of extra heavy pipe fittings. It is 10 inches inside diameter and 24 inches deep. The digester rotates at 12 r.p.m. on its flanges on a trunnion. Heat is supplied by a row of gas burners placed beneath the vessel.

The cooked chips were milled in a stainless steel rod mill, 12 inches diameter by 24 inches long, containing 50 stainless steel rods, ⅞ x 23 inches. The mill rotates at 24 r.p.m.

The pulp was screened in a standard Valley laboratory flat screen fitted with No. 40 screen plate (slots .040 inches wide).

Experimental Procedure

Digestion of Sawdust

In the studies carried out in the cooks of Series IA and IB a 60-gram sample of lowland white fir sawdust (calculated on oven dry basis) was introduced into the autoclave with the calculated amount of ammonium sulphite. Water was then added to make up a total amount of 600 cc. The ratio of water to oven dry wood was 10 parts to 1. In two of the cooks ammonium hydroxide was added, as indicated in Table II.

The autoclave was then closed immediately and placed in the oil bath, after the bath had reached the maximum temperature desired for the cook. The cooking time in the tables includes the time from the placing of the autoclave in the oil bath to the time it was taken out. The time required to bring the autoclave to maximum temperature was approximately 1 hour in each case.

In the first series of cooks, IA, the pressure was immediately relieved at the end of the selected cooking time, and the residual wood separated from the spent liquor by filtration in a Buchner funnel. The residue was then washed with hot water until the filtrate was clear. Aliquot portions of the spent liquor were taken for analysis.

In the series IB, the autoclave was placed in cold water at the end of the predetermined cooking time and allowed to cool to room temperature before opening. This took about 1½ hours. By this procedure no gases were lost from the cooking liquor. The same procedure was fol-

[3] Courtesy of Inland Empire Co., Millwood, Wash.

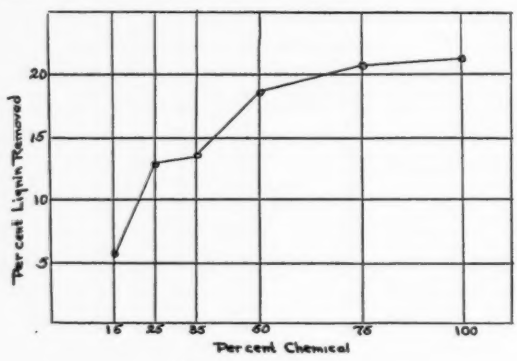

FIG. 1

Lignin Removal vs. Per Cent Chemicals.

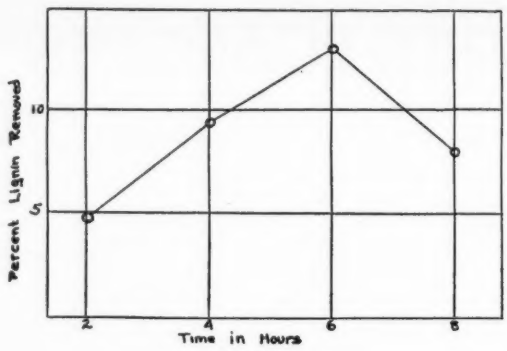

FIG. 2

Lignin Removal vs. Time.

TABLE II. SERIES IA₁
EFFECT ON YIELD AND CHEMICAL PROPERTIES OF RESIDUAL WOOD BY VARYING THE PER CENT CHEMICAL USED. TEMPERATURE CONSTANT 170° C. TOTAL TIME 6 HOURS

Cook Number	Per cent chemical on oven dry wood	Grams oven dry wood	Per cent Yield	Per cent Lignin: Based on Residual Wood	Per cent Lignin: Based on original Wood	Per cent Cellulose: Based on Residual Wood	Per cent Cellulose: Based on Original Wood	Total SO_2 in spent Liquor, grams	Total Solids in Liquor grams	Character of Residual Wood
4	15	60	75.4	31.75	23.90	65.00	48.9	.323	16.5	Burned
5	15	60	75.4	31.60	23.80	....	....	.61	16.48	Burned
6	15 %NH_4OH	60	83.1	28.5	23.75	....	....	.295	16.22	Light
1	25	60.62	72.1	22.94	16.53	69.80	50.04	.837	25.08	Slightly Burned
7	25 10 %NH_4OH	60	79.7	24.25	19.5	....	....	.837	22.74	Light
12	35	60	76.5	20.86	15.90	70.84	54.20	1.061	30.30	Light
2	50	60	77.5	14.04	10.88	76.20	59.10	4.43	37.40	Light
3	75	60	71.8	12.27	8.81	72.9	52.4	9.32	47.28	Light
8	100	60	70.5	11.3	7.96	73.6	51.8	10.35	59.84	Light

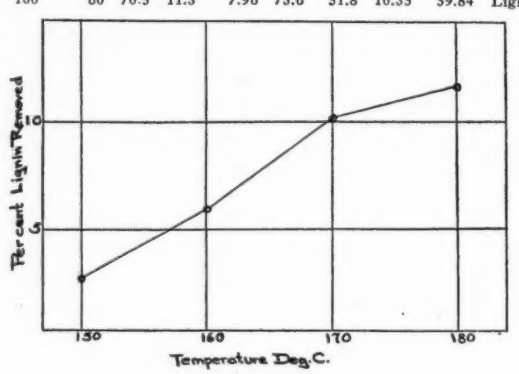

FIG. 3

Lignin Removal vs. Temperature of Cooking.

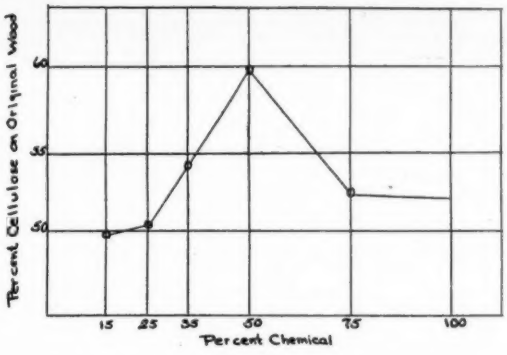

FIG. 4

Cellulose in Residual Wood (Based on Original Wood) vs. Per Cent Chemical.

lowed as in the first series for the separation of the residual wood and spent liquor. Two cooks were also made; one with ammonium hydroxide added to the ammonium sulphite, and the other with sulphurous acid added as indicated in Table V.

Analysis of Residual Wood and Spent Liquor

In all cases the yield of residual wood on the basis of the original oven dry sawdust was determined. The residual wood was analyzed in the series IA for lignin *(5)*. On the basis of the amount of lignin originally in the wood the amount of lignin removed in each cook was calculated (Figs. 1, 2 and 3). The residual wood in the cooks in which the amount of chemical was varied (series IA_1) was analyzed for cellulose *(5)*. The spent liquor in series IA was analyzed for total sulphur dioxide by titration with a standard solution of iodine and for total solids by evaporating an aliquot portion to dryness.

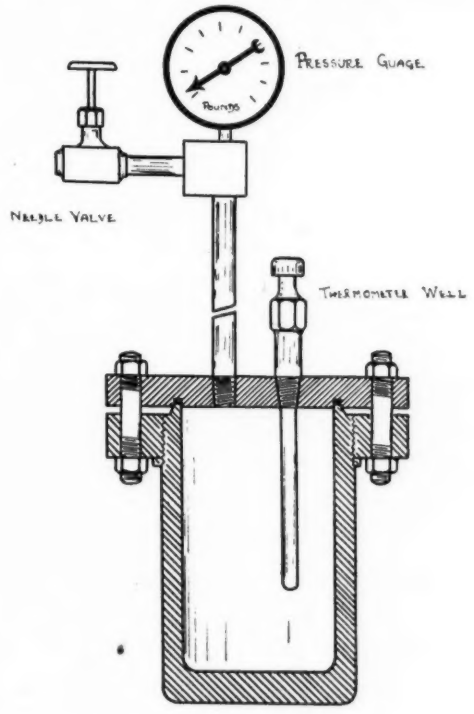

FIG. 5

Autoclave. (Scale ½ inch = 1 inch).

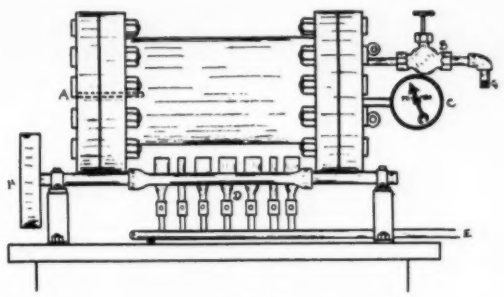

FIG. 7

Rotary Digester. A. Thermometer well. B. Valve. C. Pressure gauge. D. Gas burners. E. Gas line. F. Pulley.

In the series IB the residual wood was analyzed for total cellulose *(5)* and alpha cellulose *(5)*. The spent liquor was analyzed for total pentosans *(5)* and total sulphur dioxide. Qualitative tests were made for formaldehyde by the standard phenol-sulphuric acid test and Hehner's formaldehyde test.

Digestion of Chips

In the experiments of series IC, 60 grams of oven dry commercial lowland white fir chips were digested in the autoclave under the conditions indicated in Table VI. In these cooks an impregnation period of about 1½ hours at approximately 135 deg. C. was used before raising to the final cooking temperature in order to insure complete impregnation of the chips during the cooking period. Yields were calculated and the relative softness or degree of pulping was judged by the ease with which the chips could be defibered by the fingers.

The final experiments (series II) were carried out in the rotary digester. 2 kg. of oven dry chips were cooked with varying amounts of chemicals and a water ratio of 8:1. In one case 25 per cent total chemicals were used,

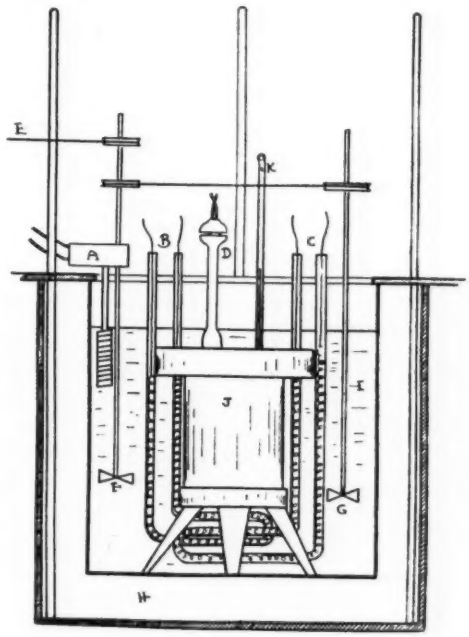

FIG. 6

Constant Temperature Bath. A. Thermoregulator. B.C. Heating coils connected to three heat switch. D. Knife heater connected with thermoregulator. E. Pulley to stirrers from water motor. F.G. Stirrers. H. Insulation. I. Oil. J. Autoclave. K. Thermometer.

TABLE III. SERIES IA₂
EFFECT ON YIELD AND LIGNIN REMOVAL BY VARYING THE TIME OF COOKING. TEMPERATURE CONSTANT AT 170° C. PER CENT CHEMICAL CONSTANT AT 25% OVEN DRY WEIGHT OF WOOD

Cook Number	Time	Grams Oven Dry Wood	Per Cent Yield	Per cent Lignin: Based on Residual Wood	Per cent Lignin: Based on Original Wood	Total SO_2 in spent Liquor, Grams	Total Solids in Liquor, Grams	Character of Residual Wood
9	2	60	85.8	28.68	24.6	1.07	19.21	Light
11	4	60	81.2	24.78	20.07	1.72	21.33	Light
1	6	60	72.1	22.94	16.53	.837	25.08	Light
13	8	60	74.5	28.88	21.55	1.06	25.48	Burned

TABLE IV. SERIES IA₂
EFFECT ON YIELD AND LIGNIN REMOVAL BY VARYING THE TEMPERATURE. TOTAL TIME 4 HOURS. PER CENT CHEMICAL CONSTANT AT 35% OVEN DRY WEIGHT OF WOOD

Cook Number	Maximum Temperature	Grams Oven Dry Wood	Per Cent Yield	Per cent Lignin: Based on Residual Wood	Per cent Lignin: Based on Original Wood	Total SO_2 in spent Liquor, Grams	Total Solids in Liquor, Grams	Character of Residual Wood
17	150	60	90.4	26.87	24.25	1.02	24.80	Light
15	160	60	86.4	23.55	20.80	2.04	24.66	Light
16	170	60	79.9	24.25	19.35	1.37	28.77	Light
14	180	60	70.5	25.13	17.72	1.63	32.06	Burned

which were made up of ammonium sulphite and ammonium carbonate in a ratio of 5:1. In these cooks the temperature was brought up to 125 deg. C. and maintained there for approximately 2½ hours, then quickly raised to 174 to 176 deg. C. and kept there for about 4 hours. At the end of each cooking time the pressure was at once released, and the cooked chips removed and washed. The chips were pressed in a hand press to remove the free water and weighed. The moisture content was determined and the per cent yield calculated.

The cooked chips were milled in a rod mill at a consistency of 8 per cent, for a period of time varying from 1½ to 4 hours. Per cent screenings which did not pass through No. 40 flat screen (slots .040 inches wide) were determined in the pulp after milling for 1½ to 4 hour periods.

Discussion of Results

DIGESTION OF SAWDUST

Lignin Removal

The amount of lignin removed shows a rapid increase when the wood is pulped with increasing amounts of chemical up to 50 per cent of the dry weight of the wood. Increase in the amount of chemical used beyond 50 per cent causes comparatively little further increase in the amount of delignification (Fig. 1). The wood cooked with 50 per cent chemical contained 14.04 per cent lignin representing 10.88 per cent based on the original wood.

Addition of ammonium hydroxide to ammonium sulphite caused no appreciable change in the amount of lignin removed. In one case it decreased the amount of lignin removed by about 3 per cent. (Table II).

With increase in time of digestion up to 6 hours total cooking time there is a steady increase in amount of delignification. At 8 hours cooking time the amount of lignin removed dropped off sharply (Fig. 2). In this case the residual wood was dark and of a burned appearance and it is possible that degradation products of other constituents of wood may have been analyzed as lignin, giving an apparently higher lignin content.

With increased temperature of digestion there is a nearly constant increase in delignification (Fig. 3). The wood cooked at 180 deg. C. was decidedly burned, indicating degradation and the rate of increase in delignification begins to fall off at this temperature.

However, it is interesting to note that whereas delignification of the original wood increases with higher temperatures, the residual wood actually has an increased lignin content at temperatures above 160 deg. C. The cellulose apparently is attacked since the yields are lower.

Cellulose in Residual Wood

With increase in the amount of chemical used to digest the wood up to 50 per cent of its dry weight there is an increase in the amount of cellulose in the residual wood (Table II). An increase in the amount of chemical of over 50 per cent causes a falling off in the amount of cellulose in the residual wood (Fig. 4 and Table II). Wood cooked with 50 per cent chemical at 170 deg. C. for 6 hours contains 76.2 per cent cellulose. Wood cooked with 15 per cent and with 25 per cent chemical showed a burned appearance. The lower cellulose content in these two cooks is apparently due to degradation of the cellulose, there being 6.1 per cent and 4.0 per cent losses, respectively, in cellulose, based on the cellulose content of the original wood (56 per cent). In the case of the cook with 35 per cent chemical there is practically no degradation of the cellulose and the wood had a light color. Apparently with the lower concentrations of ammonium sulphite, the alkalinity of the cooking liquor is not sufficient to neutralize all of the acids formed during the digestion, and this causes hydrolysis of the cellulose. This assumption is further borne out by the fact that addition of ammonium hydroxide to one of the cooking liquors containing 15 per cent ammonium sulphite, on the basis of the wood, caused a decided increase in the yield of pulp and gave a product of light color and of slightly less lignin content. A higher yield was also obtained by adding ammonium hydroxide to the cooking liquor containing 25 per cent chemical (Table II).

This also is shown by the results in Table V. Here three cooks are listed each having 25 per cent ammonium sulphite. To one was added 10 per cent excess ammonium hydroxide, to the other 10 per cent excess sulphurous acid. The wood cooked with excess ammonia had the highest yield, 78.9 per cent, and also the largest amount of cellulose based on the original wood, 54.8 per cent. On the other hand the wood digested with ex-

TABLE V. SERIES IB
CHEMICAL ACTION OF AMMONIUM SULPHITE ON WOOD UNDER THE CONDITIONS GIVEN

Cook Number	Time	Temperature	Per cent Chemical on Oven Dry Wood	Grams Oven Dry Wood	Per cent Yield	Total Cellulose: Based on Residual Wood	Total Cellulose: Based on Original Wood	Alpha Cellulose: Based on Cellulose	Alpha Cellulose: Based on Original Wood	Total SO_2 in spent liquor Grams	Formaldehyde Test	Pentosans in Liquor, Grams
18	6	170	50	60	72.2	73.2	52.8	73.2	36.8	11.34	Positive	2.76
30	2	170	50	60	88.6	66.2	58.6	78.4	46.0	10.70	Positive	1.75
24	2	160	50	60	88.8	65.2	57.9	72.2	41.80	11.42	Positive	1.12
27	6	170	25	60	75.7	68.5	51.9	75.6	39.23	2.30	Positive	2.91
25	6	170	25 10% H_2SO_3	60	66.80	76.0	50.7	77.25	39.1	3.57	Positive	.86
28	6	170	25 10% NH_4OH	60	78.9	69.5	54.8	68.8	37.8	2.90	Positive	3.01

cess sulphurous acid had the lowest yield, 66.80 per cent, and the lowest cellulose based on the original wood, 50.7 per cent. It is interesting to note, however, that the actual cellulose content of the pulp was the highest, 76.0, of any of these three cooks indicating that the sulphurous acid had removed more lignin, yielding a pulp richer in cellulose. This cellulose also had the highest alpha cellulose content of the three cooks in question.

When ammonium sulphite is used in amounts over 50 per cent of the dry weight of the wood, the large excess of this chemical apparently causes a slight degradation of the cellulose.

With the amount of chemical and the temperature constant, an increase in cooking time yields a pulp with higher cellulose content, which is to be expected. However, the per cent cellulose based on the original wood is less showing that increased cooking time increases degradation of the cellulose.

Yield and Character of Residual Wood

Increase in the amount of chemical caused but little variation in the yield, the figures running between 70.5 and 77.5 per cent for wood cooked 6 hours at 170 deg. C. and with widely different amounts of ammonium sulphite. The yield figures follow the same trend as the cellulose content of the residual wood (Table II). There is a slight increase in yield with increased amount of chemical up to 50 per cent of the weight of the wood, then the yield decreases with further amounts of chemical.

Addition of ammonium hydroxide to the cooking liquor increases the yield, whereas sulphurous acid decreases the yield but gives a pulp of greater cellulose content. Wood cooked with less than 25 per cent ammonium sulphite is decidedly dark and burned.

With increase in cooking time yield figures follow the trend of lignin removal, that is, they decrease as lignin is removed with longer cooking. Yields sharply drop with increased temperature. This is due in part to removal of lignin and apparently to an equal extent to the degradation of cellulose.

Spent Liquor

The spent liquors tested for formaldehyde by the standard phenol-sulphuric acid test and by Hehner's test all showed the presence of formaldehyde. Formaldehyde has been shown to be a product of the hydrolysis of lignin with acids *(9, 10, 12)*. Digesting wood with ammonium sulphite also causes the splitting off of formaldehyde.

Increase in time and increase in temperature of cooking both cause greater pentosan removal. Addition of ammonium hydroxide increased the amount of pentosans dissolved, whereas sulphurous acid inhibited removal of pentosans.

TABLE VI. SERIES IC

COOKING CONDITIONS AND YIELDS BY PULPING CHIPS IN AUTOCLAVE

				Impregnation			Cooking				
Cook Number	Per Cent Chemical	Water Ratio	Grams Oven Dry Chips	Time to Reach (Hrs.)	Time at (Hrs.)	Temp. Deg. C.	Time to Reach (Hrs.)	Time at (Hrs.)	Temp. Deg. C.	Per Cent Yield	Remarks
19	25	7-1	60	1-15	4-15	136	0-30	4-15	170	80.4	Light color—showed little disentegration
21	25	8-1	60	1-45	2-35	136	0-56	3-44	180	68.6	Chips softer, but still harsh
26	35	8-1	60	0-35	1-41	136	3-00	3-00	175	72.26	Chips were soft, easily disintegrated
29	40	8-1	60	0-56	2-18	136	0-34	2-57	178	74.03	Chips about same as 26

TABLE VII. SERIES II

COOKING CONDITIONS AND PULP YIELDS BY PULPING CHIPS IN DIGESTER AND MILLING IN ROD MILL

				Impregnation			Cooking					
Cook Number	Per Cent Chemical	Water Ratio	Grams Oven Dry Chips	Time to Reach (Hrs.)	Time at (Hrs.)	Temp. Deg. C.	Time to Reach (Hrs.)	Time at (Hrs.)	Temp. Deg. C.	Per Cent Yield	Per cent Screenings, Milled 1½ Hrs.	Per cent Screenings, Milled 4 Hrs.	Per cent Screenings, Milled 8½ Hrs.
1R	25	8-1	2000	Cook a failure as no impregnation period was used.									
2R	35	8-1	2000	0-40	2-20	127	0-35	3-25	175	72.3	0.6	0.0	...
3R	20	8-1	2000	0-40	2-20	127	0-35	3-25	175	75.7	10.0	31.0	...
4R	25	8-1	2000	0-40	2-20	127	0-35	3-25	175	72.9	11.8	3.11	...
5R	*25	5.5-1	2044‡	1-15	1-25	135	0-20	4-00	175	80.0	...	39.7	8.6

* Ammonium sulphite and ammonium carbonate in ratio 5:1.
‡ Hogged sawmill waste, lowland white fir.

DIGESTION OF CHIPS

Preliminary experiments in the autoclave indicated that chips could be pulped with 35 per cent chemical when cooked at 136 deg. C. for about two hours before bringing to maximum temperature. The chips could be disintegrated with ease in the fingers.

In the rotary digester it was possible with 25 per cent chemical to obtain a 72.9 per cent yield by cooking at 127 deg. C. for 2 hours and 20 minutes and at 175 deg. C. for 3 hours and 25 minutes. After 4 hours in the rod mill 96.9 per cent of the pulp passed through a No. 40 screen. The pulp was coarse and well suited for boards and coarse paper.

With 35 per cent chemical practically the same yield of pulp was obtained. This yield produced a fine long fibered pulp light in color, and having only 0.6 per cent screenings after 1½ hours in the rod mill.

Cooking hogged sawmill waste with a combination of ammonium sulphite and ammonium carbonate increased the yield, but a dark pulp with a high percentage of screenings was obtained.

Summary

A study has been made of the action of ammonium sulphite on lowland white fir (Abies Grandis). The results of this study indicate the following:

1. Removal of lignin increases with (a) increase in the amount of chemical used; (b) increased duration of digestion up to 6 hours; (c) increased temperature of digestion.

2. The amount of lignin in the residual wood decreases with the amount of chemical used, decreases with increased time of digestion up to 6 hours, but increases with increased temperature of digestion above 160 deg. C.

3. The cellulose content of the residual wood increases with increased amount of chemical used up to 50 per cent of the dry weight of the wood, then decreases. Lower amounts of chemicals (15 to 25 per cent) result in degradation of the cellulose. Increased cooking time yields residual woods of higher cellulose content, but there is increased degradation of the cellulose based on the original wood.

4. Addition of ammonium hydroxide to the ammonium sulphite increases the yield, decreases the degradation of cellulose and increases pentosan removal. Addition of sulphurous acid decreases the removal of pentosans, decreases the yield, increases degradation of the cellulose, but increases the cellulose content of the residual wood.

5. The yield is decreased with increased duration of the cook and with increased temperature. The yield

varies comparatively little with increased amounts of chemical at constant cooking time and temperature of the residual wood but follows the same trend as the cellulose content.

6. Pulp in yields of 72 to 73 per cent may be obtained from lowland white fir chips by digesting with 26 to 35 per cent ammonium sulphite for 6 to 7 hours total cooking time and with a maximum temperature of 175 deg. C. The cooked chips are readily defibered in a rod mill.

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Some Variations in Cooking Kraft Pulp*

By Ralph Reid[1]

The cooking of kraft pulp has always been quite a problem, in that there has been no definite end-point, which could be used to determine when a digester of pulp is cooked to the proper degree. As a result the pulp produced in any particular mill has been of a variable quality, this quality and its variations depending upon the judgment of the men in charge of the digester house.

In an attempt to produce a more uniform quality of pulp, we recently did some experimental work along the lines suggested in a report from the laboratory of the Kramfors A/B. in Sweden, which was published in Svensh Pappers Tidnings, No. 23, December 15, 1930. The object of that company's experimental work was to determine the causes of variation in the quality of pulp.

Their work included studies of freeness, sodium sulphide, and chip length.

We started our work by making beating curves on individual cooks of pulp. All beating was done in a 1½ pound laboratory beater, under standard conditions suited to our convenience. As a result of these studies we found that there is a very close relationship between the freeness of the pulp after given beating time and the maximum strength of the pulp. In our case a pulp, which would beat to a freeness of 400 in 60 minutes, seemed to be the most desirable pulp for mill use. Test sheets on this pulp had a maximum Mullen strength of 1.7 points per pound, at a freeness of 500. If the time required to beat to a freeness of 400 varied either way from 60 minutes, the maximum strength developed would decrease.

We then checked composite samples of pulp from each shift to see whether or not there was any variation in pulp cooked by different operators. We found that the beating time required to bring these samples to a freeness of 400 varied from 46 to 72 minutes, which is considerable, considering that each sample was representative of a full eight hour production. These results were posted in the digester house daily, and the operators were instructed to keep this beating time at 60 minutes. In a week's time there was a very marked improvement in the uniformity of the pulp produced.

Control by Chlorine Number

Our next thought was to develop some means of testing these samples so as to be able to obtain test results more rapidly, and as a result we made some studies of chlorine numbers, and their relation to pulp quality. We found that there is a rather marked relationship between the chlorine number and the beating time required to beat to a given freeness.

We used the method developed by Kramfors A/B. to determine the chlorine number and found it to be quite reliable and rapid. In this method a weighed sample of moist pulp is exposed to a measured volume of chlorine gas and the volume of gas remaining after exposure is measured. The absorbed chlorine is obtained by differences. The time of exposure is 15 minutes, which gives a fairly quick result.

It is interesting to note the variation in pulp yield with variations in chlorine number. Assuming a normal chlorine number of 6, Kramfors A/B. found that the yield varied about 3 per cent for each unit change in the chlorine number, the change being a direct ratio.

As we progressed with these studies a rather peculiar phenomena appeared. Pulp would be cooked to the desired degree in a definite time for a few days. Then we would find that either the cooking time or the amount of active alkali per digester would have to be changed to obtain the same degree of cooking. We discovered these changes came as the mill changed from one raft of wood to another.

A check on the history of the wood used, showed that there was a difference between wood felled with the sap up, and that felled with the sap down. It required a very definite increase in the active alkali charge to cook winter cut wood, over that required for summer cut wood. In our case this is about 10 per cent.

Present Operation

As we now operate, the moisture in the wood charged in a digester is estimated by weighing a measured volume of chips, the sample being taken as the digester is filled. The cooking liquor is tested and the proper volume, to give the required amount of active alkali is run into the digester. Then enough black liquor is added so as to make the total volume of water, including water in the chips and water in both white and black liquors, the same for each digester. The only variation is the amount of active alkali used to cook woods cut at different seasons of the year.

This procedure works very nicely from an operating standpoint, and has produced pulp with a considerable improvement over our former procedure, in which the digester operation was entirely a matter of the operator's judgment.

* Presented at the fall meeting of the Pacific Section of the Technical Association of the Pulp and Paper Industry, Seattle, Wash., October 21-22, 1932.

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Pulp and Paper Industry Literature Review

Abstracts of Articles and Patents Compiled by the Abstracts and Bibliography Committee of the Technical Association of the Pulp and Paper Industry, A. Papineau-Couture, John F. Ohlson, C. E. Peterson and Clarence J. West, Chairman

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Determination of pentosans in pulp. F. W. Klingstedt. Papers-Travarutidskrift Finland 1931: 950-954; Chimie et Industrie 27: 1399 (June 1932).—A critical review of the various methods of determining pentosans in pulp, showing the defects of the Noll and Belz method and of the colorimetric methods. The author starts from hydroxymethylfurfural prepared by the action of oxalic acid on cane sugar, which he treats with hydroxylamine hydrochloride and titrates with 0.1 *N* sodium hydroxide, the acid liberated in aqueous or hydrochloric acid solution. To determine the furfural number of pulp, he treats 5 g. with 13 per cent hydrochloric acid and distills according to the Tollens method; the distillate is treated with hydroxylamine hydrochloride or with barbituric acid, and titrated with 0.1 *N* caustic soda in presence of methyl orange. —A. P.-C.

Determination of moisture in pulp laps, wood chips and sawdust by xylene treatment. Anon. Tech. Assoc. Papers Series XV: 387-388 (June, 1932); Paper Trade J. 95, No. 1: 40-41 (July 7, 1932).—A description of the tentative official standard T.A.P.P.I. method.—A. P.-C.

Pulp testing developments in 1931. Donald E. Cable. Paper Trade J. 94, No. 25: 27-30 (June 23, 1932); Tech. Assoc. Papers Series XV: 279-282 (June, 1932).—A review with bibliography of 66 references.—A. P.-C.

Analysis of pulp for rayon. Z. Kawata. J. Soc. Chem. Ind. Japan 35 (Supp. Binding): 174 (1932).—Cotton pulp is not suitable for the preparation of viscose as it contains iron. About two-thirds of the hemicellulose in pulp is pressed out in the production of alkali-cellulose. The oxidation method for determining hemicellulose gives erroneous results in the presence of resin. The latter is extracted with ether and alcohol, but with alcohol coloring matters are also extracted. The turbidity of viscose is due to resin from the pulp. Pulps which show a heterogeneous absorption of aqueous alkali are not suitable for making alkali-cellulose.—A. P.-C.

Notes on the examination of pulp and papers by ultra-violet light. V. Gruenman. Papier 35:531-533 (May, 1932).—A discussion of the possibilities of the utilization of ultra-violet light examination of pulps and papers, from which it is concluded that it may be used for :(1) controlling the degree of cooking and determining approximately the proportion of impurities in a homogeneous pulp; (2) ascertaining the identity and origin of paper, provided the ultra-violet light examination is complemented by physical and chemical tests; (3) determining the fastness to light of colored papers (using a quartz lamp, without color filter); (4) determining the fastness to light of dyestuffs used in paper making; (5) revealing defects which are invisible in daylight.—A. P.-C.

Tearing test for paper. Anon. Paper Trade J. 94, No. 18: 43 (May 5, 1932).—A description of the proposed revision of the official standard T.A.P.P.I. method.—A. P.-C.

Determination of the strength of paper. F. Venneman. Mon. Papeterie Belge 12: 255-260 (April, 1932).—From a discussion of the relative merits of the tensile and bursting strength tests, the author concludes that the latter

gives a sounder and truer evaluation of the effective strength of paper.—A. P.-C.

The effect and control of variables in the size testing of paper boards. C. E. Libby and Ferri Casciani. Paper Trade J. 94, No. 20:29-32 (May 19, 1932).—Results are given of a study of the effects of temperature of testing liquid, hydrostatic pressure and concentration of lactic acid in testing the sizing of heavy paper boards by the Abrams penescope. Errors due to variations in atmospheric temperature are best overcome by jacketing the instruments.—A. P.-C.

Measurement of the acidity of paper. S. R. H. Edge. World's Paper Trade Rev. 96: 1336, 1338, 1376-1382 (April 22, 1932).—The author considers that there are two methods of investigating the acidity of papers which are free from the uncertainties associated with methods of the Kohler-Hall type: (1) To find a solution of such pH value that the latter is not altered by immersing the paper in it; the pH of such a solution, if it can be found, is considered to be the truest measure of the pH of the paper. (2) Complete electrometric titration of a known weight of the paper in a known volume of water, keeping the paper present the whole time so as to show up the insoluble basic or acidic substances present as well as the soluble ones, and so get an understandable measure of the total acidity which can be got out of it. Examples of the results given by both methods are given and discussed.—A. P.-C.

Accurate measurement of paper thickness is difficult. O. F. Günther. July Paper Can. 33: 180-181 (June 1932).—A comparison was made of the determination of the thickness of paper by mechanical means and with the microscope; for the latter a specially designed device was used for holding a 15-mm. strip of paper on edge without subjecting it to appreciable pressure. In cutting the strips for optical measurement of thickness, distortion of the cut edge takes place, so that the results are lower than mechanical measurement when scissors or a cutter are used (due to compression of the edge), and higher when a knife is used (due to expansion).—A. P.-C.

Importance of moisture measurement in the manufacture of paper. Methods of measuring humidity. Anon. World's Paper Trade Rev. 96: 1167-1174 (April 8. 1932).—In the Siccometer, constructed by Siemens and Halske, the relationship between the dielectric constant of paper and its moisture content it utilized to vary the capacity of a condenser, the paper web on the machine being passed through the leakage field of the condenser. The principle, construction and performance of the instrument are explained.—A. P.-C.

Optical instruments in the paper industry. Ben W. Rowland and Harry F. Lewis. Paper Trade J. 94, No. 19: 40-41 (May 12, 1932).—A brief outline of the manner in which the spectrophotometer, hydrogen-ion colorimeter, nephelometer, polarizing microscope, micro-projector, refractometers, polariscope and photomicrographic equipment have been used in pulp and paper research work.—A. P.-C.

Volumetric composition of paper. IV. Composition of air fraction: Improved apparatus and method for determining porosity. R. H. Doughty, C. O. Seborg and P. K. Baird. Paper Trade J. 94, No. 24: 31-33 (June 16, 1932).—An easily operated porosity tester of the differential pressure-drop type, constructed from an old hand-operated Mullen tester, is described. The technic of the test and the units of expression are discussed.—A. P.-C.

Method of testing the insulation of paper-insulated cables and of liquid impregnating products from the standpoint of their moisture content. Felten & Guilleaume Carlswerk Aktiengesellschaft. Fr. pat. 713,836 (Aug. 24, 1931).—The moisture content of the various layers of paper insulation is deduced from their folding resistance. In the case of liquid impregnating media such as oils, thoroughly dried paper is immersed in the liquid, and the moisture content of the liquid is deduced from the folding resistance of the paper before and after impregnation.—A. P.-C.

Variations in thickness, as a function of weight, produced by pressure or by friction: Corresponding influence on the value of a given parameter. J. Ribière-Raverlat. Papeterie 54: 582-586 (June 10, 1932).—A concrete example is given to show the effects on bursting strength (Ashcroft) of the variations in thickness produced by pressure and by friction on papers of the same furnish but of different weights. Under the conditions of the example selected, maximum ashcroft was obtained by frictioning for weights up to 70 g. per sq. m.; above this weight, pressure gave a higher Ashcroft than frictioning.—A. P.-C.

Graphic expression of color by means of the photoelectric cell: Its use in paper making. Ribière. Raverlat. Papeterie 54: 410-418; 466-476 (Apr. 25, May 10, 1932).—An explanation of photoelectric effect and its use in color analysis, of the manner in which it is used in the photoelectric cell and the manner of expressing the results, together with a description, accompanied by examples, of the method of determining the nature and amounts of dyestuffs to be used in a furnish to reproduce a given shade of paper.—A. P.-C.

Apparatus for measuring smoothness of paper surfaces. Julius Bekk. Paper Trade J. 94, No. 26:41-42 (June 30, 1932).—A description of the principle, construction, operation and performance of the Bekk smoothness and porosity tester, as constructed by R. Fuess, Berlin-Steglitz, Germany.

Estimating stability of paper by heating. Royal H. Rasch and Gordon O. Stone. Paper Trade J. 95, No. 4: 28-30 (July 28, 1932).—The reproducibility of results in aging tests of paper (determination of folding resistance before and after heating for 72 hours at 100° C.) is discussed in relation to: (1) lack of homogeneity of the structure of paper, (2) possible variations between different folding testers, (3) variations in humidity during testing, and (4) variations in oven conditions; suggestions are offered for minimizing errors resulting from these variables, and data are presented showing the degree of reproducibility to be expected when adhering to the suggestions.—A. P.-C.

Phloroglucinol method for the determination of mechanical wood pulp in paper. H. B. Dunnicliff and H. D. Suri. Analyst 57: 354-361 (June, 1932).—Cross and bevan's method has been modified to suit conditions in which a higher temperature (35° C.) has to be employed for the reaction. Anhydrous phloroglucinol in 12 per cent hydrochloric acid is used. The process of "absorption" of phloroglucinol appears to include both adsorption and subsequent chemical reaction, which is more rapid than the adsorption at first.—A. P.-C.

Range of work and the arrangement of a control laboratory of a paper mill or a ground wood mill, to make possible its economic use. W. Drechsel. Papier-Fabr. 30, No. 13: 219-224 (March 27, 1932). Thorough description and discussion of a control laboratory.—J. F. O.

Contribution to the standardizing of the conditions in the drying and conditioning of pulp test sheets. Jonas. Papier-Fabr. 30, No. 13: 170-179 (March 27, 1932).—By means of numerous curves and tables, the author shows the influence of the various conditions dur-

ing the drying and conditioning of pulp test sheets.—J. F. O.

Concerning the status of strength testing. Possanner. Papier-Fabr. 30, No. 13: 158-170 (March 27, 1932).—Report of the committee (German) for the testing of sheets for strength. A comprehensive description of each step in strength testing is presented together with illustrations and curves. The various methods used in other countries are discussed and an exhaustive international bibliography is given which is of great value.—J. F. O.

Comparing the methods used in practice for the determination of the degree of decomposition. Schwalbe. Papier-Fabr. 30, No. 13: 147-151, (March 27, 1932).—The problem was, to decide which method for determining the degree of cooking would check the best when used by several investigators. Tables are given showing the results of the different tests. General discussion as to the advantages and disadvantages of each method tried.—J. F. O.

Research on the rosin and fat determination in pulp boards according to the emulsifying process. Schwalbe. Papier-Fabr. 30, No. 13, 153-158 (March 27, 1932).—Discussion of the experiments made with various inorganic solvents for rosin, but in general the results were unfavorable, so that organic solvents must still be used.—J. F. O.

Distribution of rosin, ash and reducing substances in pulp boards. Schwalbe. Papier-Fabr. 30, No. 13:151-153 (March 27, 1932).—Tests were made at different places on the board to show that the fibers are not all alike, due to various conditions of growth of the tree, and hence the rosin, ash and some other substances are not uniformly distributed throughout the board.—J. F. O.

Paper Specialties

Impregnating Roofing Felt With Bituminous Saturants. Joseph Zavertnik and Alexander A. MacCubbin assignors to The Barret Co. U. S. pat. 1,845,775 (Feb. 16, 1932).—Liquid is applied by spraying to one side of the felt, and this side is brought into contact with a rotating, screen-covered vacuum drum. Saturating bituminous material is applied to the outer surface of the felt; the latter remains in contact with the surface of the drum after emerging from the bath of saturant and vacuum is maintained to effect further penetration into the body of the felt.—A. P.-C.

Process and Apparatus for the Manufacture of Rubber-Impregnated Paper or Cardboard. V. Antoine. Belg. pat. 382,583 (Oct. 31, 1931).—The rubber containing solution is delivered between two sheets of paper or cardboard at the nip of a press consisting of two rolls placed horizontally side by side and covered with a soft rubber lining.—A. P.-C.

Laminated Fiber Product Suitable for Tubes, Etc. Milton O. Schur assignor to Brown Co. U. S. pat. 1,847,269 (March 1, 1932).—Alternate laminas are formed of relatively free fibers and of cellulosic gel.—A. P.-C.

Waterproofing Wallpaper and Wallboard. Societa Anonima Cartiere Giacomo Bosso and Niccolo Silvestrini. Fr. pat. 721,694 (Nov. 19, 1930).—Papers or pasteboard for walls, etc., are waterproofed by soaking them in solution of cellulose esters or ethers in volatile solvents—A. P.-C.

Waterproof Fibrous Products. H. D. Elkington assignee of The Flintkote Co. Brit. pat. 366,521 (Oct. 30,-1930).—An aqueous dispersion containing not more than 35% dry weight of feltable fibrous stock, and an approximately equal weight of non-feltable fillers, and a suitable amount of a waterproof thermoplastic substance (asphalt, pitch, tar, resin) is made into sheets or plates, which are dried and molded under heat and pressure.—A. P.-C.

Corrugated Paper Board. Charles Del. Wood, Sr., assignor to The Grasselli Chemical Co. U. S. pat. 1,-863,760 (June 21, 1932).—The product is a corrugated board comprising a corrugated sheet of paper faced with a liner consisting of sheets joined together by an adhesive, part of the sheets consisting of cylinder-machine made paper and the others of fourdrinier-machine made paper —A. P.-C.

Manufacture of Molded Fibre Products. Naugatuck Chemical Co., assignees of W. A. Gibbons. Brit. pat. 372,-217 (Sept. 29, 1931).—A pulp of animal, vegetable or mineral fibers is mixed with an aqueous dispersion of styrene or its homologs or polymerides, which are deposited on the fibers by a coagulating agent; the product is then pressed into the desired form.—A. P.-C.

Ivory Board. H. Postl and L. Reinemer-Post. Papier 35:535-537 (May 1932).—Practical operating hints.—A. P.-C.

Laminated Fibrous Material. British Thomson-Houston Co. Assignees of H. D. Segar. Brit. pat. 370,-323 (Sept. 8, 1931).—The impregnating and bonding agent consists of a composition containing equal parts by weight of shellac and an "alkyd" resin condensation product obtained, *e.g.*, by heating together phthalic anhydride, glycerin, linseed oil fatty acids, rosin and castor oil. The resulting laminated product is suitable for use in oil-filled electrical apparatus.—A. P.-C.

Multiply Paper Sheet. Charles DeL. Wood, Sr., assignor of The Grasselli Chemical Co. U. S. pat. 1,863,-707 (June 21, 1932).—The invention covers a sheet of paper consisting of alternating plies of cylinder and fourdrinier paper joined together by an adhesive.—A. P.-C.

Indented Paper. William H. Ellis, Jr. U. S. pat. 1,863,973 (June 21, 1932).—The product covered by this patent consists of two or more layers of indented paper joined by an adhesive. Each layer has numerous, small, alternating, pressure-resisting indentations and protuberances, which are archlike in any cross section and of such size and shape that the protuberances of one sheet are offset relatively to those of the other sheets. The composite thickness throughout the built-up sheet is thus substantially equal to the sum of the thickness of the individual sheets.—A. P.-C.

Felted Products from Wood Chips. Philip W. Codwise assignor to Certain-teed Products Corp. U. S. pats. 1,857,432 and 1,857,433 (May 10, 1932).—Steamed wood chips are impregnated under pressure with a 5 per cent or less concentrated solution of caustic soda and the liquor is then drained off to such an extent as to leave an amount representing 4 to 14 per cent of alkali based on the weight of the chips; the latter are cooked with this liquor under pressure to soften them and incompletely to release the bond between the fibers, and are then shredded into fiber bundles and matted into sheets which are suitable for roofing, insulation, etc.—A. P.-C.

Wallboard Manufacture from Saw-Mill Waste. Arthur E. Millington assignor to The U. S. National Bank of Portland, Ore., as trustee. U. S. pat. 1,857,316 (May 10, 1932).—The material is subdivided to pass a screen of desired mesh, boiled in a dilute sodium carbonate solution long enough to separate the gums and resins from the fibers and loosen the fibers to soften the waste, washed to remove gums and resins from the fibers, and then subjected to a mechanical separation of the fibers to provide a finished board of soft, self-sustaining material capable

of resisting breaking and other strains without use of a binder or filler.—A. P.-C.

Waterproofing and Fireproofing Fibrous Materials Such as Pulp Boards. Wilford B. Hoggatt. U. S. pat. 1,860,097 (May 24, 1932).—Fibrous material such as wood or bagasse is pulped and the pulp is formed into articles such as sheets which are then impregnated with a fireproofing compound such as ammonium sulphate, borax, boric acid and glue solution followed by drying and treatment with a waterproofing material such as a solution of paraffin in gasoline.—A. P.-C.

Method of and Apparatus for Producing Roofing. Donald A. Cumfer assignor to The Patent and Licensing Corp. U. S. pat. 1,864,806 (June 28, 1932).—Both faces of the roofing base are coated, *e.g.*, with asphalt, while it is moving in a direction parallel to the butt-edge of the finished elements. One face is surfaced while the material is travelling in the same direction and the other face is surfaced when the material is travelling in a direction at right angles to the butt edge of the finished elements. —A. P.-C.

Reinforced Paper. Joseph W. Ballard assignor to Griswoldville Manufacturing Co. U. S. pat. 1,866,513 (July 5, 1932).—Paper is reinforced by applying to one face of it an open-mesh fabric and pressing so that the fabric side of the sheet presents a plane surface, while the paper side of the sheet presents an uneven surface formed by short ridges corresponding in position to the yarns or threads of the fabric.—A. P.-C.

Building Material and Process of Making Same. Lester Kirschbraun assignor to The Flintkote Co. U. S. pat. 1,865,634 (July 5, 1932).—One face of a web of roofing felt is coated with a layer of an aqueous dispersion of bitumen capable of forming, when dry, a film in which the dispersing agent is distributed in the form of honeycomb structure; a layer of granular surfacing material is applied while the first coating is still wet, and the coated web is then dried.—A. P.-C.

Method of Manufacturing Composition Roofing. Chester R. MacDonald assignor to The Patent and Licensing Corp. U. S. pat. 1,865,579 (July 5, 1932).—A web of roofing felt is saturated and slate-surfaced, and is then slotted to make tabs. A recoating of asphalt or the like is then applied on the opposite upper marginal faces only, the exposed tabs are reslated, and the web is divided into shingle strips.—A. P.-C.

Waterproofing Paper. Papeteries Navarre, Soc. Anon. Fr. pat. 720,333 (Oct. 20, 1930).—Paper or cardboard is waterproofed by impregnation with a solution of alkali caseinate containing enough formaldehyde to coagulate the caseinate and a substance such as ammonia to suspend the coagulation until the paper begins to dry. The paper is heated to about 120° C., and may also be treated with a mixture of aluminum acetate and formaldehyde and again dried.—A. P.-C.

Reinforced Paper. William R. Collings and Donald L. Gibb assignors to The Dow Chemical Co. U. S. pat. 1,867,071 (July 12, 1932).—An elastic composite reinforced paper comprises two sheets or creped paper united by a layer of adhesive embedded in which are parallel, diagonally laid strands of spun yarns in two plies which cross each other but are not interwoven.—A. P.-C.

Condenser Paper and Method of Making the Same. Louis P. Schweitzer. U. S. pat. 1,864,950 (June 28, 1932). —Two or more dry, uncalendered webs of uncoated paper are moistened, pressed together and dried to give a substantially homogeneous sheet.—A. P.-C.

Paper Bags Suitable for Lime, Fertilizers, Etc. Herbert A. Grant assignor to Miller Tompkins and Co. U. S. pat 1,860,244 (May 24, 1932).—Multi-ply bags suitable for excluding air and moisture have one ply formed of a paper base such as parchmentized kraft paper coated with wax and printing ink.—A. P.-C.

Molded Pulp Board. Gustave Landt assignor to Agasote Millboard Co. U. S. pat. 1,860,466 (May 31, 1932).—Fiber such as rag wood pulp or bagasse is used with about 30 to 50 per cent as much montan wax.—A. P.-C.

Impregnating Premolded Pulp Articles. Albert L. Clapp. U. S. pat. 1,857,498 (May 10, 1932).—Premolded pulp articles, such as bottles or dishes, are impregnated throughout with a sodium silicate solution containing kieselguhr in suspension and the articles are heat-dried at temperatures below that at which the pulp would be decomposed.—A. P.-C.

Impregnated Asbestos-Cellulose Paper Suitable for Making Plates Resembling Crockery, Etc. Albert L. Clapp. U. S. pat. 1,857,496 (May 10, 1932).—An asbestos-cellulose paper is impregnated with a solution of sodium silicate and a finely divided inorganic filler, which is capable of reacting with the sodium silicate, is sprinkled into the surface of the paper; it is then molded under heat and pressure.—A. P.-C.

Manufacture of Pulp Rovings. Milton O. Schur and William B. Meglitz assignors to Brown Co. U. S. pat. 1,867,599 (July 19, 1932).—Pulp fibers are progressively deposited from aqueous suspension as continuous spaced ribbons on a portion of a rotating cylinder mold, and the ribbons are progressively furled into rovings on another portion of the mold.—A. P.-C.

Manufacture of Pulp Rovings. Frederick W. Vogel and William B. Meglitz assignors to Brown Co. U. S. pat. 1,864,624 (June 28, 1932).—Pulp fibers are deposited as ribbons from an aqueous suspension on a travelling wire cloth. One edge of each ribbon is progressively detached from the wire and is engaged by a suitable frictional device to roll the ribbons into a round form while still on the wire.—A. P.-C.

Noncurling Floor Covering. Carleton Ellis assignor to Rezyl Corp. U. S. pat. 1,848,329 (March 8, 1932).—A base such as asphalt-saturated felt is provided with a sheeted tread of cellulose acetate composition.—A. P.-C.

Roofing Material. S. Levy assignor to International Copperclad Co. Brit. pat. 349,690 (March 22, 1929).—The lower surface of asphalted felt is thickly coated with asphalt in which granular material such as crushed slate is embedded; a film of asphalt is applied to the upper surface and the latter is then electroplated with metal (suitably after applying bronze powder to render the surface conductive).—A. P.-C.

Asphalted Felt Roofing. W. M. Shakespeare assignor to International Copperclad Co. Brit. pat. 342,487 (Jan. 15, 1929).—Material such as asphalt-impregnated felt is coated with a surface layer of asphalt rolled into ridges and electroplated with metal such as copper.—A. P.-C.

Composition for Impregnating Roofing Felt. Clarence R. Eckert assignor to The Barrett Co. U. S. pat. 1,849,867 (March 15, 1932).—A composition is used which is relatively more fluid than asphalt alone at elevated temperatures and which comprises 60 to 98 per cent of asphalt having a melting point of not less than about 32° C. together with 40 to 2 per cent of paracoumarone resin.—A. P.-C.

Washable Wall Paper. Edward F. Arnold assignor to E. I. du Pont de Nemours and Co. U. S. pat. 1,848,686 (March 8, 1932).—A surface coating is used comprising a cellulose compound such as cellulose nitrate and a wax or metal stearate (or both, etc.), which together give an invisible, mat, washable surface film.—A. P.-C.

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Section of the

COST DEPARTMENT

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American Paper and Pulp Association

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Fire and Use and Occupancy Insurance*

By A. J. Mylrea[1]

A fire insurance policy is a contract of indemity, since by it one party (the insurance company) agrees to make good to another party (the assured) such loss or damage as the latter may have sustained in consequence of a fire under the conditions prescribed in the policy contract and to an amount not exceeding that named in the policy.

Indemnity and Personal Indemnity

The policy is not only a contract of indemnity but one of personal indemnity. It insures the party to whom the policy is issued. It insures no one else; hence it cannot be transferred without the consent of both parties to the contract.

In all contracts of personal indemnity, the indemnitor (the insurance company) shall make good in money or in kind, the loss sustained by the party to be indemnified (the assured) and thereby becomes entitled to the rights and advantages of the indemnified party in the same manner that such rights accrue to an endorser on a note who has, in consequence of his endorsement, been obliged to meet the note. It is for this reason that the insurer may require from the assured an assignment of all right of recovery against any other party for loss or damage to the extent of the payment therefor is made by the insurer otherwise known as subregation.

Real Meaning of Insurance

A very common error is the statement so often heard that we insure a house or a barn, or a stock of merchandise, when, in reality, we do nothing of the sort. We insure the owner of the house or the barn or the stock of merchandise against the loss or damage that would come to him through the destruction of any of these articles.

The fire insurance policy covers *direct* loss or damage by fire, direct meaning immediate or proximate as distinguished from remote or consequential.

Meaning of the Word Fire

It is very important that the exact meaning of the word "fire" should be thoroughly understood. In a discourse on the subject, John R. Blades gives an excellent definition, namely, that the word "fire" as contemplated in the contracts insuring this hazard, is not a fire unless (1) it is accidental as to its origin and (2) is accompanied by ignition.

Fire is not accidental if it is intentionally started. If an assured builds a fire in his furnace or stove, he does so for a specific purpose, presumably economic and "friendly," and for that reason, any damage to the assured's property caused solely by such a fire, is not covered by the fire policy. However, if the fire escapes from its usual place of confinement and starts a second fire, the latter is stated to be "hostile" and accidental and hence is covered by the policy. Fires attributed to arson being wilfully kindled by the assured, are in no sense accidental, although in one sense of the word they might be termed friendly. The difficulty is to prove arson.

The definition of fire requires that there must also be ignition. In other words, mere combustion cannot be stated to be fire unless such action is accompanied by the appearance of a flame or glow. The mere charring of wooden joists or floors adjacent to steam pipes or the spontaneous heating of a pile of hides in a tannery where there is no flame or glow would not constitute a fire.

Extent of Fire Coverage

You will recall I said a fire policy covers direct loss or damage. This is very important, for while the assured, in addition to recovering his loss on property actually destroyed by fire, can also collect any loss or damage to property by smoke from the fire or by water or chemicals or other materials applied as extinguishing agents, or for a hole cut in the roof or wall of his building to get at the seat of the fire, or from rain or snow entering the roof or windows of his structure after the fire, he cannot under the ordinary fire policy, collect any consequential loss.

For purposes of illustration, suppose that a dealer in fresh meats preserves his stock in a building equipped with electrical refrigeration, power being brought from a power house in distant section of the city. Suppose the power line supplying his premises passes a certain structure several blocks away. This structure burns; its walls fall across the power line and break it. If emergency lines cannot be run, there will be sufficient interruption to service to allow a rise in temperature in the cold storage room. If this happens, the meat may spoil, causing the dealer to sustain a loss. This loss cannot be included under the dealer's policy covering the meat, as the meat was not injured by direct action of fire.

The Quebec and other provincial insurance acts contain statutory fire conditions which are declared to be part of every fire insurance contract and are printed on all poli-

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cies. When the parties desire to deviate from these definite provisions or conditions such exceptions shall be noted in conspicuous type and using ink of a different color. Any variation which does not conform with the statute shall not be legal and binding on the assured. No mention is made of the insurers however, who would therefore be bound by any clause attached to the policy indicated in any manner whatsoever. The insurance company can bind itself to an agreement which contradicts the statutory conditions if it so desires, the Law making no restrictions on the insured in this respect.

Statutory Conditions

We have dealt thus far, only with the standard printed policy and made passing reference to the statutory conditions contained in every policy. Considerable time could be spent to advantage in a study of these conditions alone, as their provisions are so important and may have a very material bearing on the adjustment in the event of loss.

It is from these conditions you learn that, should an assured incorrectly describe or misrepresent the property to be insured, the policy shall be of no force:—Any change material to the risk after the policy has been issued may void the policy. The transfer of the interest under certain conditions may render the policy void—Abandonment of the property is not allowed without consent of the insurance company—Money, books of account, securities for money, and evidences of debt or title are not insured and that plate, plate glass, plated ware, jewelry, paintings, sculptures, curiosities, scientific and musical instruments, patterns, plans, uncoined gold or silver, works of art, articles of vertu, frescoes, clocks, watches, trinkets and mirrors are not insured unless mentioned in the policy. The insurance company is not liable for loss if there is prior insurances in force unless consent and/or notice is given—The policy does not cover loss by fire caused by invasion, insurrection, riot, civil commotion, military or usurped power, earthquake or volcanic eruption, nor for loss or damage to goods destroyed or damaged while undergoing any process in or by which the application of fire heat is necessary—nor for loss or damage occurring to buildings or to their contents, while buildings are undergoing alterations or repairs without special permission—nor for loss or damage occurring when coal oil, fuel oil, gasoline and similar compounds are kept or stored on the premises, without permission (oil for illuminating purposes excepted in restricted quantities)—Also that the insurance company will make good, loss caused by the explosion of natural or coal gas, in a building not forming part of a gas works. These conditions also deal with the steps to be taken by the assured in the event of loss.

The Rider or Wording

The printed policy, however, is not complete until a rider or "wording" so called, is attached to it. This wording is drawn up in such a manner that the insurance will properly fit the facts and conditions of the particular risk and the restrictive conditions of the statutory conditions modified to suit the individual needs of the assured.

The wordings, while written in various combinations, can be reduced to "specific" forms and "blanket" forms. Specific forms are subdivided into "single item" and "several items" while if there are a number of items on one form, irrespective of whether they be blanket or specific items the whole is known as a "schedule."

The "single item" specific form covers under one item a certain class of property, thus:

$1,000—on Lumber.

The "several items" specific form covers two or more items of different kinds of property.

$2,000—on Building
1,000—on Equipment
1,500—on Stock

The "blanket form" covers the different classes of property under one item:

$5,000—on Buildings and Contents.

While the Schedule covers:

Item No.	Amount	
1	$5,000	—on Building No. 10 located at—
2	2,000	—on Equipment therein
3	2,000	—on Stock
4	15,000	—on Building & Contents located at
5	20,000	—on Building & Contents located at another place
	$44,000	

Manner in Which Insurance Is Written

Each of the above mentioned forms of insurance together with others, too numerous to mention here, has its proper place, but the manner in which the insurance is specified has a material bearing on the rate and the amount of insurance it is necessary to carry. For instance, in a factory your stock values may be constantly shifting from one building to another. To keep the correct amount of specific insurance, on the stock in each building or section at all times would be quite a task, and to be sure you are fully protected your only recourse with specific insurance would be to place sufficient to cover the maximum value that would ever be at risk in each section. This might mean you would be carrying fifty per cent more than your total value. The solution would be to cover the stock under a blanket item to cover in all buildings or sections. As soon as this is done however, a new condition arises and that is the insurance companies require that a "distribution" clause or "co-insurance" clause be inserted in the wording.

These clauses differ materially. Let us say you have a factory subdivided into four sections and have stock valued at $100,000, divided let us say, $50,000, $20,000, $20,000 and $10,000 and in the four sections called A, B, C and D respectively, and are carrying $50,000 insurance subject to "distribution." A fire occurs and does damage to the extent of $25,000 in section A, where the $50,000 value happened to be. The insurance is first distributed in accordance with the values obtaining at the time of the loss which would be $25,000 in A, $10,000 in B and C, and $5,000 in D. The loss only being $25,000, the insurance would be sufficient to reimburse you in full. However, had a $15,000 loss occurred in Section B, you would only collect $10,000, and must stand $5,000 loss yourself.

To collect the full amount of your loss in any one section and where the loss in this section is total, and with a distribution clause in your policies you must carry 100 per cent insurance as to your total value. This still may result in a very material saving when compared with specific insurance.

If the insurance had been written subject to 90 per cent co-insurance clause you agree to carry insurance at least equal to 90 per cent of the "actual cash value" of the property insured. In the event of deficiency you act the same as if you were an insurance company yourself for the difference between what you were carrying and 90 per cent of the actual cash value.

To be specific, let us take the same distribution of values used in the foregoing illustration. Total value $100,000. You agree to carry at least $90,000 insurance. You do so, and a loss of $25,000 is sustained in Section A. The insurance companies pay you 90/90ths of $25,000 or $25,000.

Due to unfortunate conditions, the fire however, in an-

other instance, spreads from Section A to B and then to C and totally destroyed the stock in each. You have in all sections $100,000 value, $90,000 damage and $90,000 loss. You collect 90/90ths of your loss, or $90,000 the total amount of the policy and have $10,000 value still left. In other words, you have been getting 10 per cent more insurance than is written specifically and at a rate of 15 per cent less per $100 insurance than if written without co-insurance.

Reversing the figuring the same protection with specific insurance would have cost you 30.7 per cent more.

However, should you have been carrying only $50,000 insurance and sustained a $25,000 loss in Section A, the Companies would pay you 50/90ths of $25,000 or $13,888, and you would stand the difference of $11,111.12.

The same remarks apply to insurance on buildings or equipment.

One good feature about insuring buildings and contents under a blanket form, subject to co-insurance is that the buildings and equipment values act as a surge tank when it comes to the operation of the co-insurance clause, if you are under-insured due to a rapid increase in stock without an increase in insurance.

To illustrate: The buildings of your plant are worth $500,000. The equipment $300,000 and average stock $200,000, or a total value of $1,000,000. With a 90 per cent insurance clause you agree to carry $900,000 insurance, which you do. Suppose a consignment of goods worth $100,000 additional is received at night which goes into your warehouse which already had $200,000 stock value therein, and your insurance is not increased. A fire loss occurs that night totally destroying the stock. Your value at the time of the fire was $1,100,000. You have only $900,000 insurance, your loss $150,000. You collect 90/99ths of $150,000 or $136,363.63, while if you had been carrying $180,000 blanket insurance on a $200,000 stock and the loss occurred as above, or when your stock values had increased to $300,000, you could collect 18/27ths of $150,000, or $100,000.

It has no effect whatever on the adjustment of losses if the Clause is lived up to by the assured. It is only when the assured does not maintain the agreed amount of insurance in proportion to the actual cash value that the clause is operative.

Co-insurance however, is based on your agreeing to carry at all times insurance at least equal to a specified percentage of the "actual cash value." Care must be taken to determine what the actual cash value is. The value at the time of the fire is what counts, not what it was when the insurance was placed.

With "stocks" this factor is a comparatively simple matter because you know what replacement costs are. Suppose the stock was wheat and that you had purchased it a couple of years ago. Today it would be replaced for a fraction of what it cost. Inasmuch as you would be paid on the basis of its present-day cost it would be absurd to carry insurance on what it originally cost you to buy. On the other hand, if you had purchased some raw materials or stock for sale before the new tariff or dumping duty was put in force and today that stock would cost you 25 per cent more to replace, it is on the higher valuation you should base your insurance as it is on this valuation you would be paid in the event of loss.

Building and machinery values however, are another subject. The actual cash value is a *reasonable* current cost to replace the property new, less the *actual* accrued depreciation.

Book Value and Insurable Value

Book values and insurable values are quite different. With a going concern in healthy condition the maximum depreciation is usually written off annually in order to reduce the profits tax as much as possible. Replacements are charged to maintenance instead of Capital expenditure for the same reason; the cost of dies and patterns are frequently expensed. With proper maintenance it is only a few years until the book value is materially lower than the insurable value. This so-called depreciation is actually amortization. Because of a sound policy of amortization carried on over a period of years, the book property valuation has been reduced to an abnormally low figure and a substantial renewal fund has been accumulated. The building that has not yet burned has certainly lost none of its actual value by reason of this fund or book value. On the contrary the fact that such a renewal reserve is being maintained is the strongest proof that all that is possible is being done to provide against impairment of efficiency and impairment of investment.

The prime factors of depreciation are,

1—Natural decay
2—Wear and tear
3—Obsolescence
4—Inadequacy.

Methods of Calculating Depreciation

There are a number of methods of determining depreciation, all of which are more or less approximate but the straight line method is probably as accurate as any and the most simple to understand and use. The "straight line formula" can be stated as follows:

Let V represent the investment, N the average life in period of years, S the salvage value and X the amount that is to be charged off for depreciation, and we have—

$$X = \frac{V - S}{N}$$

If the salvage value is zero, the formula becomes—

$$X = \frac{V}{N}$$

Therefore if you have a building that cost $10,000 with an estimated life of 25 years and salvage value zero, we have,

$$X = \frac{10{,}000}{25} = \$400.00$$

annual depreciation to be charged.

Several companies we know work on the basis of deducting the regular depreciation until it has reached 25 per cent of the original cost of the structure. From then on the insurable value remains stationary based on the assumption that the maintenance offsets any further depreciation.

The first cost of the building however has a material bearing. A plant built today instead of depreciating will in all probability appreciate in value for some years to come. One built ten years ago suffers a double depreciation, that of reduced replacement costs and that due to age.

The present day insurable values are largely matters of intelligent estimates. In arriving at the figures for yourselves a good gauge as to their accuracy is whether in the event of fire you would be satisfied to be paid on the basis of your figure. An appraisal by a regular appraisal company which will reflect accurately and in detail the insurable values is much to be desired.

The fact has already been stressed that a fire insurance policy only covers the direct loss or damage occasioned as a result of the fire, but it does not pay those standing

charges which must be met whether the business is operating or not, nor does it provide for the net profit which would have been earned had a fire not caused cessation of the business.

Use and Occupancy

To insure the business against loss of earnings by reason of interruption by fire, use and occupancy insurance, sometimes termed business interruption indemnity, has been designed.

When the normal income of a business is reduced or ended by damage or destruction of the premises that produced it, the Use and Occupancy insurance will provide finances to keep the organization together, to meet obligations to stock holders, and others, and to finance emergency measures to continue business or to hasten the resumption of operations.

Assume for example, the complete destruction of a manufacturing plant which has been earning a substantial profit. There is an immediate ending of production, sales cannot be made, and income ceases. Until the plant has been rebuilt, or the manufacturer can arrange to purchase or lease a new one, there will be no income. Unless business can be commenced at once, in other quarters, the organization will commence to disintegrate, as the men are forced to find other employment to support themselves. Stock holders will complain of the loss of dividends, Bond Holders will expect payment of interest and tax officers will expect tax payments on assessments made prior to the fire, and on the income or profits of the tax period before it. There may also be demands under contracts which cover definite periods, and which cannot be cancelled in case of fire. Skilled employees may hold yearly contracts, a lawyer may be retained on a yearly basis, advertising may have been contracted for in advance, and royalty payments may have to continue until a fixed future date.

In some cases power contracts are a continuing drain. Many other expenses however, can be ended promptly (common labor for example). Others must continue for a time. Salesmen away from headquarters must travel home and employees must be retained to bring accounts up to date and look after collections.

Partial Damage

If however, instead of complete destruction there has only been a damage to the plant, it may be possible for the manufacturer to restore his premises in a comparatively short period of time, and suffer only for a temporary loss of production and diminished profits for the period. A resourceful manufacturer may endeavor to make up his production by renting temporary quarters or extra machines, or by running overtime with an extra force until his plant is put in order. Under such circumstances, his loss will be no greater than the extra expense incurred by the emergency measures.

A trivial damage to the plant may cost the manufacturer a day's payroll devoted to rearranging work, and a loss of production that will not be great enough to reduce sales.

In cases similar to any of the foregoing examples, the manufacturer would be indemnified by the use and occupancy insurance for the kind of loss mentioned.

Classes of Use and Occupancy Coverage

There are many different kinds of use and occupancy forms designed to fit the needs of different risks but any of the standard forms will fit into one of the following classes.

1—For business enterprises that normally show constant earnings during the year—this form provides a uniform daily basis of payment.

2—For business enterprises showing fluctuating earnings this form provides for a fluctuating daily, weekly or monthly basis of payment.

3—For business enterprises of other kinds—these forms do not limit the policy to a daily, weekly, or monthly basis, but incorporates a co-insurance or average clause and this provides for the payment of actual loss in full, whether uniform or fluctuating, providing that the required amount of insurance is carried.

This latter form of use and occupancy is known as co-insurance form and to date has not been adopted in Canada, the reason being that the introduction of the so-called English profits form of insurance is so much superior to any of these forms of Use and Occupancy that it has not been deemed necessary.

The forms in each class are ordinarily divided into manufacturing and non-manufacturing forms.

The manufacturing forms sometimes only include use and occupancy loss due to the damage or destruction of buildings and other equipment, while others, in addition to insuring buildings and other equipment include the loss to raw stock, or stock in process.

The non-manufacturing forms include loss to finished stock.

All standard use and occupancy forms limit the payment to the actual loss sustained and provide how the amount shall be determined.

The Insured Income

The insured income is stated as being that part of the income which consists of net profit and fixed charges together with the part that may be used to pay expenses incurred for the purpose of reducing loss.

The period during which the assured may collect for the interruption to his income is stated as being the length of time required, with the exercise of due diligence and dispatch, to rebuild, repair, or replace such part of the property as may be damaged or destroyed.

In order, therefore, to support a valid claim under a use and occupancy policy, the insured must be able to show that the property was producing income, and that, because of damage or destruction to the property itself, the income has been interrupted.

In passing let me just draw your attention to the fact that the period of indemnity is stated as being the length of time required, with the exercise of due diligence and despatch, to rebuild, repair or replace such part of the property as may be damaged or destroyed.

The English profits form which we will refer to later, makes no such limitation.

How Calculated

The income insured is that part of gross income which represents:

1—Net profit, the net profit being the difference between gross profit and all expenses. It may be thought of as that part of the income left after all expenses have been paid, and all accruals have been provided for.

If the income has diminished, the first loss sustained is necessarily the item of profit.

2—Fixed charges must necessarily continue during the total or partial suspension of business, to the extent that such fixed charges and expenses would have been earned had no fire occurred.

Fixed charges are expenses which are not immediately terminated in case of fire. They vary in different business enterprises, but ordinarily consist of the following items:

Advertising auditors' fees, agency contracts and expenses, branch or local office expenses, buying expenses, commission paid or payable on orders which the

assured are unable to fill on account of the fire, delivery service under contract, depreciation on buildings, machinery, equipment and motor vehicles, directors' fees, heating, interest on debentures, bonds, mortgages, loans, overdrafts and borrowed capital, insurance premiums—life and sundry, legal advice, light, printing, stationery and postage, power, pumping and ventilation, rents retainers, royalties, salaries and wages consisting of (a) officers, executives and employees under contract (b) foremen, skilled employees and others not under contract, but who would have to be kept on payroll to maintain the organization, subscriptions to trade and credit organizations, telephone and other service contracts, taxes (including federal, if not included in net profit), travelling expenses, upkeep of motor vehicles and/or horses, water, together with other miscellaneous charges or expenses not included in the foregoing list.

3—Expenses incurred for the purpose of reducing loss of income, such as overtime, labor, rental of extra machinery, or quarters, express or truck shipments or material that would ordinarily be transported by freight.

Income That Is Not Included

That part of income that goes towards the purchase of merchandise is not insured as no purchases will be made if the business is disabled by fire, and theoretically such loss in material that has been paid in advance, or must be paid for on arrival, can either be held until the business has been re-established or can be sold.

The remainder of income ordinarily used to pay for the expenses of common labor is generally left uninsured because ordinarily the expenses of common labor can be terminated immediately after the fire and also because it would be necessary to carry insurance sufficient in amount to include the annual payroll as well as the other items of income already discussed.

Loss of income may be collected during the time required, with exercise of due diligence and dispatch, to rebuild, repair or replace the property and *IS NOT LIMITED TO THE EXPIRY DATE OF THE POLICY.*

The Property To Be Rebuilt

The property to be rebuilt or repaired is generally buildings, equipment and machinery.

The property to be replaced in a manufacturing risk is usually raw stock, raw stock in process of manufacture.

The property to be replaced in a non-manufacturing risk is merchandise.

In rebuilding or repairing buildings, equipment or machinery, the period of loss continues to the date that the property becomes serviceable and business can be resumed.

On any manufacturing risks the destruction or damage to raw stock will produce no greater loss to income than the amount that would have been produced by working up the raw stock, and for this reason the period of the suspension due to the destruction of raw stock is limited to the time that the raw stock on hand would have made operations possible.

In the majority of cases, the raw stock can be replaced in much less time than allowed under this clause.

Replacing stock in process of manufacture that the same amount of stock shall be brought into the same stage of completion.

Usually the period allowed for this is limited by the form to thirty days.

Property Must Be Damaged

All use and occupancy forms specify that the property itself must be damaged or destroyed to impose liability for loss sustained. It therefore should be kept in mind that the loss caused by the interruption to power due to a fire in a nearby location, but not involving the insured property, is not covered.

This contingent use and occupancy loss however, can be covered upon amending the regular form to meet any specific requirements and upon the payment of an additional premium.

The manufacturer whose business has been interrupted by fire will ordinarily take immediate steps to resume operations, as by so doing, he will reduce his loss of income in proportion to the time saved in getting started.

The use and occupancy contract therefore requires the insured to resume operations promptly, this requirement being similar to the condition in the standard fire policy, that the Assured protect his property from further damage.

It is also required of the insured that he use any surplus machinery or duplicate parts thereof, equipment or supplies, or reserve raw stock which may be owned by him so that the manufacturing operations can be resumed with the least possible delay.

When business conditions are good, and a plant is operating to full capacity, little or no difficulty is encountered in arriving at the amount of use and occupancy which should be carried, or in the amount to be paid in the event of loss.

With conditions as they are at present however, we are confronted with a more difficult situation.

Let us assume that last year the assured earned his standing charges together with a small net profit, the total of both being $30,000. His use and occupancy value per dav with a non-fluctuating 300 day form therefore, would have been $100 per day.

On the other hand, we find upon investigation that the standing charges and net profit which amounted to $30,000 was all earned in 200 days of intermittent operation throughout the year. This would mean that his actual use and occupancy value for his working days was $150.00. On what basis of daily use and occupancy value are you going to pay your insured for such a contingency?

Adjustments

In the last analysis the adjustment of a use and occupancy loss is a matter of good faith between the insured and the insurer, and seeing that the insured only operated his plant 200 days last year, he should have 100 days available to make up loss in production. This being the case, it is doubtful if he would suffer any material loss, or certainly not more than $100.00 a day if a fire should suspend his operations for some little time. The $100.00 daily indemnity or $30,000.00 policy is the one he should take and not the one for the larger sum.

If on the other hand you know that during the coming year you are going to operate full time, and instead of earning $30,000 you will earn $60,000, that is the insurance which should be placed. A saving clause is therefore necessary in all wordings which would make it perfectly possible for the assured to collect double the amount per dav for a shut down that he was earning during the previous year.

The clause that I refer to as being necessary reads:

"Due consideration being given to the experience of the business before the fire and the probable experience thereafter."

Another feature which probably should be brought out more forcibly is the fact that the insurance does not cease with the expiry date of the policy. In other words, if you

place a use and occupancy policy for a period of one year, let us say from January 1st to December 31st, and you have a fire on December 20th. The policy does not cease paying on December 31st, but continues until you are capable of resuming operations no matter how long that may be, not exceeding of course, the number of days mentioned in the policy.

The English profits form of policy however, is fast replacing the ordinary use and occupancy contract.

The chief advantage of the English profits form being that:

1—The daily amount payable in the event of loss is not specified as it is under the use and occupancy policy, and therefore takes care of fluctuating earnings adequately, the loss sustained being arrived at by ascertaining the reduction in turnover that the assured has suffered in consequence of the loss with a similar period of the previous year.

2—While the use and occupancy only covers until such time as the Assured, with due diligence and dispatch, can rebuild, repair, or replace his buildings or equipment or raw stock, the English Profits policy does not so limit the period of indemnity.

You can readily perceive a condition where the assured has a contract to supply a concern with a given quantity of its product daily or weekly, and due to damage to a machine, the assured is not in a position to supply his customer with the required product. The customer may promptly take advantage of present day conditions, cancel his contract due to non-delivery, which non-delivery may have only been for say, two weeks, which was the time required to place the machinery back in operating condition. The assured at the end of two weeks is in a position to resume operations, but his contract is cancelled and therefore there is no object in his doing so.

Under the use and occupancy policy he can only collect for two weeks loss.

With the English profits policy, under such conditions the assured could collect for his loss in consequence of reduction in turnover until such time as he was able to get his turnover back to normal, even though he could resume operations in the two weeks time but his turnover did not get back to normal for 8 or 10 months.

This advantage is too apparent and too great to be overlooked with the result that it would not be surprising to me within a comparatively short period of tme, to see the use and occupancy policies a thing of the past.

Indianapolis Looks for Better Demand

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., November 7, 1932.—Right now the local paper trade is preparing for the holiday season, with some hopes of a better trade than featured that of last year. Virtually all the stimulus caused by the campaigns is exhausted, but it must be said in spite of conditions this helped. Both major parties here used a lot of paper and the statehouse last week was a regular beehive as officials of the state election board mailed out some two million ballots to the various smaller election units.

As the holiday season approaches it becomes evident that the demand for fine paper to be used in direct mail campaigns will be smaller than last year due largely to increased postage. However, quite a bit of direct mail will be used, The newspapers are depending on this in their predictions that the volume of display advertising will be considerably larger this year than last.

Another source of demand that has about reached the end of the season is that from the lithographing and label manufacturing plants, which have done a big business this year with the canning factories of the middle west. The volume of this business is larger than last year and some demand still is seen, but it is dropping rapidly with the end of the growing season. Label manufacturers, however, say there is a slight increase in demand from other industries due to a slow revival of business.

Perhaps the biggest disappointment of the fall season has been the dullness in the building paper field, where some considerable improvement had been expected. It is likely the trade depended too much on the passage of the home loan bank bill to create an immediate demand. This has not been the case. The local home loan bank for this district has been open now for nearly a month and not a loan has been made, nor is it likely any will be made until after the first of the year, according to officials.

Demand for waxed papers is fair, with the bread wrapping manufacturers apparently doing the bulk of the business. These plants are working at full capacity and this year has been the best in their history due largely to more and more bakeries utilizing waxed papers for wrapping.

Robert Gair Co. Moves

On November 1 the Robert Gair Company, Inc., manufacturers of paperboard and paperboard products, moved its executive and New York City sales offices to the new Commerce Building, 155 East 44th street, New York City, according to an announcement of the Company. Need for additional space has prompted the move.

In its new quarters, the Gair Company will have 50 per cent more space than in its former offices, occupying the entire eleventh floor in the Commerce Building which has an area of about 12,000 square feet. The offices will house all executive and general offices of the company and the New York City sales headquarters. The company maintains sales offices also in Boston and Philadelphia and operates seven paper mills and fabricating plants in Massachusetts, Connecticut, Illinois and New York.

The Gair Company has been closely identified with the commercial life of New York City since its was founded in 1864 in a small loft building on Reade Street by the late Captain Robert Gair. His pioneering activities in devising machine methods for the production of folding cartons contributed to the Company's rapid growth and established it as one of the leaders in the industry.

After outgrowing its facilities in Manhattan, the original Gair factory was moved to Brooklyn and until 1921 was housed in the Gair Industrial Buildings, a landmark of the Brooklyn waterfront. After a few years, continued need for expansion resulted in moving manufacturing activities out of the city.

Oswego Falls Tax Dispute

[FROM OUR REGULAR CORRESPONDENT]

FULTON, N. Y., November 5, 1932.—With provision that the plaintiff file an approved undertaking of $5,000, Judge E. N. Smith granted an injunction this week against tax collection and ordered the warrants released on the property levied in the case of the Oswego Falls Corporation against this city. It is alleged by the plaintiff concern, which owns valuable rights to the flow of the river at the upper dam, that certain taxes which were included in the settlement of certiorari proceedings to reduce assessments last year are now being sought again. The plaintiff contends that the settlement of those taxes was included in the final adjustment of the argument.

IMPORTS OF PAPER AND PAPER STOCK

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING NOVEMBER 5, 1932

CIGARETTE PAPER

——, Roma, Genoa, 20 cs.; American Tobacco Co., Collamer, Bordeaux, 260 cs.; De Manduit Paper Corp., Collamer, St. Nazaire, 781 cs.; Champagne Paper Corp., Collamer, St. Nazaire, 130 cs.; P. J. Schweitzer, Exochorda, Marseilles, 1 cs.; De Manduit Paper Corp., Champlain, Havre, 242 cs.; Champagne Paper Corp., Champlain, Havre, 62 cs.; American Tobacco Co., Champlain, Havre, 250 cs.; American Machine & Foundry Co., Chr. Sass, Barcelona, 10 cs.; M. Speigel & Son, Chr. Sass, Barcelona, 6 cs.

WALL PAPER

R. F. Downing & Co., Pennland, Antwerp, 1 cs.; J. E. Bernard & Co., Gripsholm, Gothenburg, 8 cs.; J. E. Bernard & Co., Amer. Merchant, London, 1 ble.; W. H. S. Lloyd & Co., Amer. Merchant, London, 1 ble.; Irving Trust Co., Hamburg, Hamburg, 5 cs.; Globe Shipping Co., Hamburg, Hamburg, 3 bls.

NEWS PRINT

W. H. Bell, Markland, Liverpool, N. C., 3,666 rolls; Jay Madden Corp., Scanyork, Kotka, 790 rolls; Jay Madden Corp., Dresden, Bremen, 337 rolls; Parsons & Whittemore, Inc., Dresden, Bremen, 179 rolls; Mastan Co., Inc., Gripsholm, Gothenburg, 184 rolls; Scott Paper Industries, Gripsholm, Gothenburg, 316 rolls.

PRINTING PAPER

E. Dietzgen & Co., Statendam, Rotterdam, 28 cs.; P. C. Zuhlke, Pennland, Antwerp, 5 cs.; P. Puttman, Pennland, Antwerp, 22 cs.; S. H. Pomerance, Aquitania, Southampton, 3 cs.; C. Steiner, Dresden, Bremen, 19 cs.; E. Dietzgen & Co., Hamburg, Hamburg, 7 cs.; Hinrichs & Pearsall, Hamburg, Hamburg, 3 cs.

PARCHMENT PACKING PAPER

Wilkinson Grey & Co., Pennland, Antwerp, 65 bls.

PACKING PAPER

K. Pauli Co., Statendam, Rotterdam, 2 cs.; C. Steiner, Statendam, Rotterdam, 65 bls.

WRAPPING PAPER

Standard Products Corp., Pennland, Antwerp, 13 rolls, 19 cs.; Japan Paper Co., Pennland, Antwerp, 1 cs.; ——, Dresden, Bremen, 2,873 rolls, 3 cs.

FILTER PAPER

H. Reeve Angel & Co., Inc., Pennland, Antwerp, 49 cs., 17 bls.; J. Manheimer, Pennland, Antwerp, 125 bls.; E. Fougera & Co., Pennland, Antwerp, 40 cs.; H. Reeve Angel & Co., Inc., Amer. Merchant, London, 12 cs.

DRAWING PAPER

F. Weber & Co., Georgic, Liverpool, 3 cs.; H. Reeve Angel & Co., Inc., Amer. Merchant, London, 4 cs.

DECALCOMANIA PAPER

B. F. Drakenfeld & Co., Georgic, Liverpool, 22 cs. (duplex); Sellers Transportation Co., Leviathan, Bremen, 2 cs.

TRANSFER PAPER

Rohner Gehrig & Co., Leviathan, Bremen, 8 cs.

SURFACE COATED PAPER

Gevaert Co. of America, Pennland, Antwerp, 60 cs.; Rothschild Import Co., Hamburg, Hamburg, 4 cs.; Phoenix Shipping Co., Hamburg, Hamburg, 9 cs.

METAL COATED PAPER

Globe Shipping Co., Dresden, Bremen, 23 cs.; K. Pauli Co., Hamburg, Hamburg, 20 cs.; Rohner, Gehrig & Co.,

BARYTA COATED PAPER

Globe Shipping Co., Dresden, Bremen, 71 cs.

COATED PAPER

Happel & McAvoy, Hamburg, Hamburg, 22 cs.

GOLD COATED PAPER

F. Murray Hill Co., Leviathan, Bremen, 5 cs.

PHOTO PAPER

Medo Photo-Supply Co., Pennland, Antwerp, 2 cs.; Defender Photo-Supply Co., Amer. Merchant, London, 20 cs.

SILK PAPER

P. J. Schweitzer, Exochorda, Marseilles, 16 cs.

TISSUE PAPER

W. J. Byrnes, Pennland, Antwerp, 7 cs.; Jay Madden Corp., Scanyork, Helsingfors, 9 bbls.

WRITING PAPER

C. Steiner, Dresden, Bremen, 2 cs.; B. Altman & Co., Champlain, Havre, 4 cs.; Globe Shipping Co., Champlain, Havre, 2 cs.

WOOL PAPER

Wilkinson Grey & Co., Pennland, Antwerp, 101 bls.

DRAFTING PAPER

Brown & Roese, Georgic, Liverpool, 1 ble.

GUMMED PAPER

W. von Doorn, Statendam, Rotterdam, 4 cs.

CARD BOARD

Coty Processing Co., Champlain, Havre, 51 cs.

MISCELLANEOUS PAPER

Corn Exchange Natl. Bank, Tokai, Maru Kobe, 12 cs.; Steiner Paper Corp., Statendam, Rotterdam, 9 cs.; ——, Dresden, Bremen, 61 bls., 34 cs.; Coy Disbrow & Co., Dresden, Bremen, 8 cs.; Kreamer & Co., Gripsholm, Gothenburg, 113 bls.; The Borregaard Co., Inc., Gripsholm, Gothenburg, 109 bls., 1589 rolls; Walker Goulard Plehn Co., Gripsholm, Gothenburg, 4,360 rolls; Arkell Safety Bag Co., Gripsholm, Gothenburg, 56 rolls; ——, Aachen, Bremen, 166 rolls; C. Steiner, Champlain, Havre, 12 cs.; Keller Dorian Paper Co., Champlain, Havre, 10 cs.; Coty Processing Co., Champlain, Havre, 1 cs.; Standard Products Corp., Champlain, Havre, 38 cs.

RAGS, BAGGINGS ETC.

Guaranty Trust Co., Clara, Trieste, 176 bls. rags; Dorfman Bag Co., Dresden, Bremen, 20 bls. bagging; E. J. Keller Co., Inc., Pulaski, ——, 189 bls. rags; ——, Belfast, Maru Kobe, 101 bls. rags; ——, Chr. Sass, Barcelona, 78 bls. bagging; ——Chr. Sass, Barcelona, 147 bls. rags; E. J. Keller Co., Inc., Hamburg, ——, 55 bls. rags, 8 bls. flax waste; E. J. Keller, Pr. Roosevelt, 31 bls. rags.

GLUE STOCK, ETC.

——, Hamburg, Hamburg, 674 bags hide glue.

CASEIN

——, Sheridan B. Ayres, 250 bags.

OLD ROPE

A. S. Wilson, Georgic, Liverpool, 78 coils; ——, Chr. Sass, Barcelona, 39 bls.; ——, Hamburg, Hamburg, 44 bls.

CHINA CLAY

Orbis Products Trading Co., Georgic, Liverpool, 140 bags.

WOOD PULP

Perkins Goodwin & Co., Scanyork, Gdynia, 525 bls. cellulose, 109 tons; Johaneson Wales & Sparre, Inc., Scanyork, Gdynia, 8,336 bls. cellulose, 1,257 tons; Castle & Overton, Inc., Scanyork, Kota, 792 bls. sulphite, 150 tons; Lagerloef Trading Co., Scanyork, Helsingfors, 270 bls. sulphite, 54 tons; Irving Trust Co., Dresden, Bremen, 1,500 bls. mechanical pulp, 250 bls. wood pulp; Parsons & Whittemore, Inc., Gripsholm, Gothenburg, 568 bls. sulphite; Pagel Horton & Co., Inc., Gripsholm, Gothenburg, 2,800 bls. sulphite; Price & Pierce, Ltd., Gripsholm, Gothenburg, 300 bls. sulphite; Johaneson Wales & Sparre, Inc., Gripsholm, Gothenburg, 700 bls. sulphite, 160 bls. chemical pulp; E. M. Sergeant & Co., Gripsholm, Gothenburg, 598 bls. kraft soda pulp; D. M. Hicks, Inc., Gripsholm, Gothenburg, 216 bls. wood pulp; M. Sone, Gripsholm, Gothenburg, 225 bls. wood pulp; ——, Ditmar Koel, Stugsund, 125 bls. sulphate, 25 tons; Johaneson Wales & Sparre, Inc., Ditmar Koel, Sundsvall, 2,000 bls. chemical pulp, 406 tons, 400 bls. sulphite, 81 tons; ——, Ditmar Koel, Hernosand, 150 bls. sulphate, 25 tons, 600 bls. sulphite, 100 tons.

PULP WOOD

Polarus Shipping Co., Songa Soldiers, Cove, 1,800 bls.

WOOD PULP BOARDS

Hercules Fibre Co., Statendam, Rotterdam, 58 bls.; Lagerloef Trading Co., Scanyork, Gdynia, 219 bls., 33 tons.

PHILADELPHIA IMPORTS

WEEK ENDING NOVEMBER 5, 1932

1st Natl. Bank of Boston, Tokai Maru, Kobe, 90 bls. rags; Keene & Arkus, Collamer, Bordeaux, 231 bls. rags; E. Mayer, Collamer, St. Nazaire, 308 bls. rags; The Lang Co., Collamer, St. Nazaire, 170 bls. rags; E. J. Keller Co., Inc., Collamer, ——, 134 bls. rags; ——, Aachen, Bremen, 166 rolls paper; Intl. Acceptance Bank, Aachen, Bremen, 27 bls. rags; F. C. Strype, Aachen, Bremen, 22 cs. raw card; J. Andersen & Co., Aachen, Bremen, 390 bls. wood pulp; Perkins Goodwin & Co., Aachen, Hamburg, 122 rolls, news print; Castle & Overton, Inc., Aachen, Hamburg, 280 bls. wood pulp; E. J. Keller Co., Inc., Aachen, ——, 73 bls. rags; Chase National Bank, Chr. Sass, Barcelona, 94 bls. rags; Bank of N. Y. & Trust Co., Chr. Sass, Barcelona, 70 bls. rags; —— Examelia, Alexandria, 42 bls. rags; ——, Examelia, Alexandria, 85 bls. rags; E. J. Keller Co., Inc., West Arrow, ——, 138 rags.

CAMDEN IMPORTS

WEEK ENDING NOVEMBER 5, 1932

Johaneson Wales & Sparre, Inc., Ditmar Koel, Sundsvall, 375 bls. sulphite, 76 tons; Bulkley Dunton & Co., Ditmar Koel, ——, 6,000 bls. wood pulp, 1016 tons; Pagel Horton & Co., Inc., Ditmar Koel, Pitea, 1,500 bls. sulphate, 250 tons.

BALTIMORE IMPORTS

WEEK ENDING NOVEMBER 5, 1932

——, Tokai Maru, Nagoya, 60 bls. rags; Congoleum Nairn Co., Collamer, Bordeaux, 231 bls. rags; Chase National Bank, Collamer Bordeaux, 786 bls. rags; Mead Sales Co., Ditmar Koel, Sundsvall, 3,496 bls. sulphite, 727 tons; Johaneson Wales & Sparre, Inc., Ditmar Koel, Sundsvall, 500 bls. chemical pulp, 101 tons; 875 bls. sulphite, 177 tons; ——, Ditmar Koel, Hernosand, 960 bls. sulphite, 160 tons; ——, Examelia, Marseilles, 10 cs. filter paper.

NORFOLK IMPORTS

WEEK ENDING NOVEMBER 5, 1932

De Manduit Paper Corp., Collamer, St. Nazaire, 200 cs. cigarette paper.

PORTLAND IMPORTS

WEEK ENDING NOVEMBER 5, 1932

Johaneson Wales & Sparre, Inc., Ditmar Koel, Sundsvall, 900 bls. sulphite, 152 tons; J. Andersen & Co., Ditmar Koel, Sundsvall, 600 bls. sulphate, 101 tons; J. Andersen & Co., Ditmar Koel, Pitea, 5,400 bls. sulphate, 900 tons.

BOSTON IMPORTS

WEEK ENDING NOVEMBER 5, 1932

——, Ditmar Koel, Stugsund, 1,750 bls. sulphite, 350 tons; Johaneson Wales & Sparre, Inc., Ditmar Koel, Sundsvall, 250 bls. chemical pulp, 50 tons; 250 bls. sulphite, 50 tons; Perkins Goodwin & Co., Ditmar Koel, Sundsvall, 7,500 bls. sulphate, 1,270 tons; ——, Ditmar Koel, Hernosand, 720 bls. sulphate, 120 tons.

SAN FRANCISCO IMPORTS

WEEK ENDING NOVEMBER 5, 1932

Mitsui & Co., Ltd., Belfast Maru, Kobe, 294 rolls news print; Scherrman Bros., Belfast Maru, Kobe, 90 bls. rags.

Racquette River Entertains

[FROM OUR REGULAR CORRESPONDENT]

POTSDAM, N. Y., November 5, 1932.—A number of prominent paper mill men are being entertained by the Racquette River Paper Company at its preserve at Granshue where the facilities for hunting and recreation are excellent. Among those in the group are Robert H. Coy, of Coy, Disbrow & Co., New York City; Howard B. Hollis, of Hollis & Duncan, Chicago; J. C. Mallalieu and J. F. Levens, president and vice president respectively of George W. Millar & Co., New York City; F. G. Burkhardt, of the Keith Paper Company, Holyoke, Mass.; H. J. Severance, of Hubbs & Howe, Buffalo; G. R. Burkhardt, of the White & Wykoff Manufacturing Company, Holyoke; G. E. Beggs, of Huggs & Hastings, Rochester; U. C. Herschey, of the Climax Manufacturing Company, Castorland; W. R. Lane, of the Lane Paper Company, New York City; H. L. Burker, of the Baxter & Lane Paper Company, New York City; Fred McNicoli and D. F. McColl, of the New York City office of the Racquette River Paper Company, and L. H. Sisson, western representative.

Dill & Collins Co. Reorganizes

The Dill & Collins Company, Philadelphia, announces that a plan for reorganization is now proceeding which will terminate the receivership and place the company in a sound financial position, permitting a continuance of the manufacture of the best quality of coated and uncoated book paper.

The company will continue to operate under the direction of Grellet Collins, the present executive staff and general personnel.

There will be no change in the company's policy with regard to quality of product and method of distribution.

By The Way —

For the first time in our fifty years of business we are going to tell in booklet form just what this ceramic lining business is all about.

We've worn out a few fountain pens trying to condense several million thoughts into a few hundred words. We think we've made a pretty fair job of it.

Anyway, we are going to mail you a copy shortly and hope you'll find time to read it.

STEBBINS
Engineering & Manufacturing Company

WATERTOWN, New York — SEATTLE, Washington

FARREL-BIRMINGHAM
COMPANY INC.

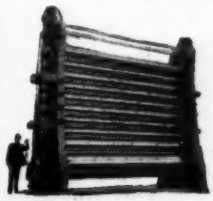
50 STATE ST., ANSONIA, CONN.

PAPER MACHINERY

CALENDERS: Board
CALENDERS: Paper
CALIPERS: Roll
GRINDING MACHINES: Roll
PRESSES: Hydraulic
Calender Roll Recovering
Pulp Dehydrating
ROLLS: Chilled Iron, Dry Sand, Gray Iron, Alloy Iron, Steel
For: Calender Stacks
Board Calenders
Super-Calenders
Glassine Calenders
Friction Rolls
Breaker Rolls
Smoothing Rolls
Creping Rolls
Plater Rolls
Cutting Machines
Paraffining and Waxing Machines
Saturating Machines
Silicating Machines
Miscellaneous Special Purposes

TRANSMISSION MACHINERY:
Gears, Cut: Spur, Single and Double Helical (Farrel-Sykes Continuous Tooth Type)
Speed Reduction Units (Farrel-Sykes)

See PAPER AND PULP MILL CATALOG
LOCKWOOD'S DIRECTORY—1931



Farrel Chilled Iron Rolls combine maximum strength with notable hardness, flawlessness of surface and extreme accuracy. Paper Finishing Calender Stacks in all sizes up to 298" face, equipped with electric, hydraulic or ratchet lift, all operated from the floor. Other uses listed above.

NEW RECORDS FOR PRODUCTION AND PRECISION ARE MADE ON FARREL-BIRMINGHAM MACHINES

TI MACHINE STEEL
SHELL BURRS

MANUFACTURED IN STANDARD SIZES SUITED TO THE PAPER TRADE

We invite your inquiries

OTHER SPECIALTIES

WARREN IMPROVED CALENDER With flexible blades, Universal Adjustment and Control, Patented — DOCTORS

WARREN IMPROVED DOUBLE DRUM— WINDER

BALL HYDRANT for Stock Circulating Systems — VALVES

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SEND FOR BULLETINS—ASK FOR PRICES.

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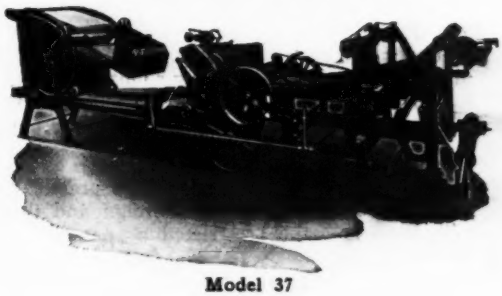
PRINTED BAG MACHINERY



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Flat & Square

With or Without 2 Color Printing
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New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, November 9, 1932.

Although business in the local paper market fell off slightly during the past week the outlook for the future is considered brighter, in some quarters, now that the presidential election has been decided. Sales forces of the leading paper organizations are conducting a strenuous campaign for orders and are fairly optimistic.

Production of news print paper is being maintained in sufficient volume throughout the United States and Canada to take care of current requirements. Advertising volume is increasing and circulations of leading newspapers are holding up well. The price situation continues unsatisfactory.

The paper board market is experiencing the usual seasonal expansion. Demand for the various grades of box board is fairly persistent. Prices are steadier. The fine paper market is moderately active. Tissues are moving in routine volume. The coarse paper market is showing signs of improvement.

Mechanical Pulp

Steadiness prevails in the ground wood market. Offerings of both imported and domestic mechanical pulp are quite adequate, although no excessive accumulations are reported and the industry continues in a sound statistical position. Prices are generally holding to previously quoted levels.

Chemical Pulp

Conditions in the chemical pulp market are fairly satisfactory. Demand for the various grades of domestic and imported chemical pulp is improving slightly. Prices generally remain unchanged. Imported bleached sulphite is quoted at from $1.90 to $2.25, on dock, Atlantic ports.

Old Rope and Bagging

The position of the old rope market is practically unchanged. Paper mill demand for foreign and domestic old manila rope is rather restricted at present. Small mixed rope continues dull. The bagging market is somewhat irregular. While scrap bagging is fairly active, gunny bagging is listless.

Rags

Trading in the domestic rag market is rather light. The various grades of cotton cuttings are going forward to the paper mills in moderate volume. Roofing grades are fairly steady. Prices are strictly nominal. The imported rag market is still affected by the fluctuations of foreign currencies.

Waste Paper

Board mill demand for the lower grades of paper stock continues brisk. Strictly folded news, strictly over-issue news and No. 1 mixed paper are all displaying strength. Prices are steady to firm. The better grades of waste paper are generally in seasonal request, with quotations unchanged.

Twine

The local twine market continues to show improvement. Demand for the various grades is persistent and should continue until the end of the year, at least. Supplies are moving into consumption in good volume. Despite competition for desirable orders quotations are steady.

New York Expands Forest Preserve

ALBANY, N. Y., November 1, 1932—Twenty-seven more contracts for the purchase of land for the state forest preserve have just been presented to land office commissioners for approval by the Conservation Department. The proposed purchases cover 11,546 acres for a consideration of $84,093.17. To a certain extent the contracts call for acquiring small areas adjoining other land owned by the state and are chiefly valuable for the consolidation of state holdings. Ten of the agreements include 7,980.75 acres within the boundaries of the Adirondack region while the remainder covers 3,565.60 acres within the Catskills. The largest single contract calls for 4,017 acres.

The forest preserve now comprises 2,299,699 acres. Under contract are also 93,122 acres which will become part of the preserve, making a total of 2,392,821 acres.

To Build Pulp and Paper Mill at Fernie

SEATTLE, Wash., November 4, 1932—A resolution endorsing the proposal of the Flathead Paper Company, Ltd., to build a pulp and paper mill at Fernie, British Columbia, has been passed by the city council.

The resolution reads as follows: "Be it resolved that the council and corporation of Fernie, B. C., go on record as being in favor of the proposed construction of a pulp and paper mill and respectfully ask federal and provincial governments to support the Flathead Paper Mills, Ltd., by guaranteeing the interest on a $500,000 bond issue at 5½ per cent per annum for a period of 10 years."

Westminster Reports Good Year

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., October 31, 1932—A despatch from Vancouver, B. C., states that although Swedish competition has been felt severely in the Australian and New Zealand markets this year, Westminster Paper Company has enjoyed a good year, according to J. J. Herb, president. Despite a decline in prices, the company was able to improve its position and a dividend of 4 per cent on the capital stock has been declared.

With a payroll of 100, the company has been operating full time all year and export business well maintained.

Fred H. Fielding Passes On

Fred H. Fielding, superintendent of the Bloomfield, N. J., plant of the Diamond Mills Paper Company, which position he had filled for a period of twelve years, died on October 28, aged 64. Services were held from his late residence and the interment was at Mechanics Falls, Maine.

Superintendents!

The Paper Industry is showing improvement and makes it more necessary than ever that the quality of your dyestuffs is satisfactory. The

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All kinds and styles of Felts for all kinds and styles of Papers.

Write us about your Felt problems and let us help you reduce your Felt Costs—we will call anywhere at any time.

DRAPER BROS. COMPANY
CANTON, MASS.
Woolen manufacturers since 1856

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, November 9, 1932.

BLANC FIXE.—Conditions in the blanc fixe market are fairly satisfactory. Prices remain unchanged. The pulp is quoted at from $42.50 to $45.00 per ton, in bulk; while the powder is selling at from 3½ cents to 3¾ cents per pound, in barrels, at works.

BLEACHING POWDER.—Quietness prevails in the bleaching powder market. The contract movement is moderate. Prices are generally holding to previously quoted levels. Bleaching powder is quoted at from $1.75 to $2.00 per 100 pounds, in drums, at works.

CASEIN.—The casein market is fairly steady. Domestic standard ground is still quoted at 7 cents and finely ground at 8 cents per pound. Argentine standard ground is selling at 8 cents and finely ground at 8½ cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—The position of the caustic soda market is practically unchanged. Prices continue steady. Solid caustic soda is quoted at from $2.50 to $2.55; while the flake and the ground are selling at from $2.90 to $2.95 per 100 pounds, in large drums, at works.

CHINA CLAY.—Demand for china clay is fairly persistent. The contract movement is well up to average. Prices are unchanged. Imported china clay is quoted at from $10 to $15 per ton, ship side; while domestic paper making clay is selling at from $5 to $12 per ton, at mine.

CHLORINE.—Trading in the chlorine market is fairly active. Contract shipments are moving in good volume. Prices are holding to schedule. Chlorine is quoted at $1.55 per 100 pounds, in tanks, or multi-unit cars, in ton lots, or over, at works.

ROSIN.—The rosin market is slightly easier. The grades of gum rosin used in the paper mills are now quoted at from $3.75 to $3.85 per 280 pounds, in barrels, at works; while wood rosin is selling at $2.80 per 280 pounds, in barrels, at southern shipping points.

SALT CAKE.—Paper mill demand for salt cake is well maintained. Prices remain unchanged. Salt cake is quoted at from $15 to $16; chrome salt cake at from $12 to $13 per ton, in bulk, at works; while imported salt cake is selling at from $14 to $15 per ton, ship side.

SODA ASH.—Most of the business transacted in the soda ash market during the past week was along routine lines. Quotations on soda ash, in car lots, at works, per 100 pounds, are still as follows: in bulk, $1.00; in bags, $1.25; and in barrels, $1.38.

STARCH.—There were no further changes in the starch market. Shipments against contract are proceeding at a steady pace. Special paper making starch is still quoted at $2.29 per 100 pounds, in bags; and at $2.56 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—Continued improvement was experienced in the sulphate of alumina market. Prices remain steady. Commercial grades are quoted at from $1.25 to $1.40; while iron free is selling at from $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—The sulphur market is more active. Sulphur is quoted at $18 per long ton, on orders of 1,000 tons, or over, on yearly contracts; and at $20 per ton on any smaller quantity over that period. On spot and near by car loads, the quotation is $21 per ton.

TALC.—The talc market is marking time. Demand is restricted. Prices are generally holding to schedule. Domestic talc is still quoted at from $16 to $18 per ton, in bulk, at mine; while imported talc is selling at from $18 to $22 per ton, in bags, ship side.

Market Quotations

Paper

(F. o. b. Mill)

Ledgers	6.50	@	38.00
Bonds	4.50	@	53.25
Index	6.00	@	12.00
Writings—			
Extra Superfine	6.50	@	15.00
Superfine	6.25	@	14.75
Tub sized	4.50	@	7.00
Engine sized	4.00	@	5.00
Book, Cased—			
S. & S. C.	5.25	@	—
M. F.	3.75	@	5.00
Coated and Enamel	6.25	@	9.75
Lithograph	6.75	@	11.25
Tissues—Per Ream—			
White No. 1	.50	@	.70
Anti-Tarnish M. G. only	.65	@	.70
Colored	.70	@	.90
White No. 2	.55	@	.60
Kraft	.65	@	.70
Manila	.55	@	.60
Manila—			
No. 1 Jute	9.00	@	9.25
No. 2 Jute	7.75	@	8.50
No. 1 Wood	4.00	@	5.25
No. 2 Wood	3.50	@	4.00
Butchers	3.37½	@	—
Fibre Papers—			
No. 1 Fibre	4.25	@	5.50
No. 2 Fibre	4.00	@	4.75
Common Bogus	1.50	@	3.00
Screenings	2.00	@	3.00
Card Middles	4.00	@	5.00
Glassine—			
Bleached, basis 25 lbs., No. 1	.09½	@	—
No. 2	.11½	@	—
Bleached, basis 20 lbs.	.11½	@	—
(Delivered New York)			
News per ton—			
Roll, contract	45.00	@	—
Rolls, spot	45.00	@	—
Sheets	50.00	@	—
Side Runs	30.00	@	35.00
Kraft—			
No. 1 Domestic	4.75	@	6.00
No. 2 Domestic	2.75	@	3.00
Southern	2.62½	@	2.75
Imported	2.75	@	3.50
Boards—per ton—			
News	27.50	@	30.00
Straw	30.00	@	32.50
Chip	25.00	@	27.50
Binders' Boards	62.00	@	70.00
Kraft Liner	37.50	@	40.00
Standard 85 Test Liner	27.50	@	—
Sat. Mla. Lt. Chip	37.50	@	40.00
(F. o. b. Mill)			
Wood Pulp Boards	70.00	@	80.00

Mechanical Pulp

(On Dock)

No. 1 Imported—			
Moist	17.00	@	20.00
Dry	17.00	@	20.00
(F. o. b. Mill)			
No. 1 Domestic	16.00	@	24.00

Chemical Pulp

(On Dock, Atlantic Ports)

Sulphite (Imported)—			
Bleached	1.90	@	2.25
Easy Bleaching	1.60	@	1.75
No. 1 strong unbleached	1.40	@	1.60
Mitscherlich unbleached	1.55	@	1.75
No. 3 strong unbleached	1.25	@	1.35
No. 1 Kraft	1.40	@	1.65
No. 2 Kraft	1.30	@	1.40
Sulphate—			
Bleached	1.85	@	2.15
(F. o. b. Pulp Mill)			
Sulphite (Domestic and Canadian)—			
Bleached	1.75	@	3.75
Easy Bleaching	1.75	@	1.90
News	1.50	@	1.65
Mitscherlich unbleached	2.25	@	2.55
Kraft (Domestic)	1.50	@	2.75
(Delivered Paper Mills)			
Soda Bleached	2.25	@	—

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	4.00	@	4.25
New White, No. 2	3.00	@	3.25
Silesias No. 1	3.75	@	4.00
New Unbleached	5.50	@	6.00
New Soft Blacks	2.75	@	3.00
Blue Overall	3.00	@	3.50
Fancy	1.50	@	1.75
Washable	1.15	@	1.40
Mixed Khaki Cuttings	2.50	@	3.00
Pink Corset Cuttings	2.75	@	3.25
O. D. Khaki Cuttings	3.00	@	3.25
Men's Corduroy	1.00	@	1.25
New Mixed Blacks	2.25	@	2.50

Old Rags

White, No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.00	@	2.25
White, No. 2—			
Repacked	1.75	@	2.00
Miscellaneous	1.50	@	1.75
Thirds and Blues—			
Repacked	1.50	@	1.75
Miscellaneous	1.00	@	1.25
Black Stockings	2.00	@	2.25
Roofing Rags—			
No. 1	.53	@	.58
No. 2	.48	@	.53
No. 3	.43	@	.48
No. 4	.38	@	.43
No. 5A	.33	@	.38

Foreign Rags

New Rags

New Dark Cuttings	1.40	@	1.50
New Mixed Cuttings	1.60	@	1.75
New Light Silesias	3.00	@	3.25
Light Flannelettes	2.50	@	2.75
Unbleached Cuttings	4.75	@	5.25
New White Cuttings	4.00	@	4.25
New Light Oxfords	3.00	@	3.25
New Light Prints	1.85	@	2.25

Old Rags

No. 1 White Linens	5.25	@	5.50
No. 2 White Linens	4.50	@	4.75
No. 3 White Linens	3.25	@	3.75
No. 4 White Linens	1.75	@	2.25
No. 1 White Cotton	3.50	@	3.75
No. 2 White Cotton	2.75	@	3.25
No. 3 White Cotton	2.25	@	2.50
No. 4 White Cotton	1.40	@	1.50
Extra Light Prints	1.80	@	2.00
Ord. Light Prints	1.60	@	1.75
Med. Light Prints	1.40	@	1.55
Dutch Blue Cottons	1.35	@	1.40
French Blue Linens	1.80	@	1.90
German Blue Linens	1.70	@	1.80
German Blue Cottons	1.20	@	1.25
Checks and Blues	1.25	@	1.30
Lindsay Garments	.75	@	.80
Dark Cottons	.70	@	.75
Old Shopperies	.55	@	.60
New Shopperies	.60	@	.65
French Blues	1.25	@	1.30

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—			
Foreign	1.00	@	1.10
Domestic	1.15	@	1.25
Wool Tares, light	.80	@	.85
Wool Tares, heavy	.80	@	.85
Bright Bagging	.75	@	.80
Small Mixed Rope	.80	@	.90
Manila Rope—			
Foreign	1.45	@	1.50
Domestic	1.50	@	1.75
New Burlap Cut	1.65	@	1.75
Hessian Jute Threads—			
Foreign	2.60	@	2.75
Domestic	2.80	@	3.00

Old Waste Papers

(F. o. b. New York)

Shavings—			
White Envelope Cuttings	1.60	@	1.70
Ordinary Hard White No. 1	1.50	@	1.60
Hard White No. 2	1.30	@	1.40
Soft White No. 1	1.40	@	1.50
Flat Stock—			
Stitchless	.55	@	.65
Overissue Mag.	.55	@	.65
Solid Flat Book	.50	@	.55
Crumpled No. 1	.40	@	.45
Solid Book Ledger	1.50	@	1.75
Ledger Stock	.45	@	.55
New B. B. Chips	.20	@	.25
Manilas—			
New Env. Cut	1.25	@	1.35
New Cuttings	1.00	@	1.05
Extra No. 1 old	.80	@	.90
Print	.35	@	.40
Bogus Wrapper	.30	@	.35
Container	.25	@	.30
Old Kraft Machine—			
Compressed bales	.75	@	.85
News—			
No. 1 White News	1.05	@	1.15
Strictly Overissue	.50	@	.55
Strictly Folded	.40	@	.45
No. 1 Mixed Paper	.15	@	.20

LAND O'LAKES CASEIN

High quality Casein made under strict laboratory control. Excellent solubility. Satisfactory viscosity. Write for sample and quotations.

LAND O' LAKES CREAMERIES, INC., MINNEAPOLIS, MINN.
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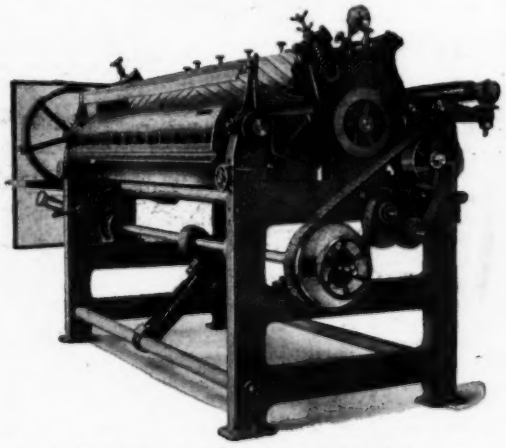
MODEL 28

ROLLER BEARING CUTTER



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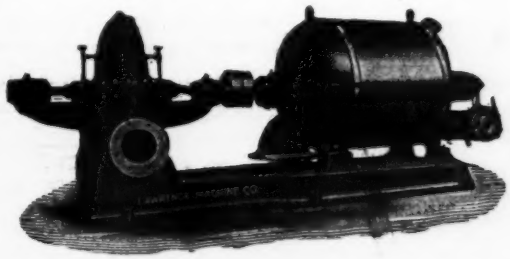

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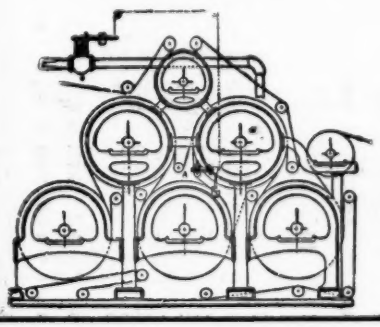
The Pickles Drying Regulator



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Pickles Drying Regulator

will do everything we claim for it and more. The test costs you nothing until you are satisfied. Many mills tried one and now have every machine equipped. Write for list of users and other information.

W. F. PICKLES **Buckland, Conn.**

Twines
(F. o. b. Mill)

Cotton—			
B. C., 18 basis	.30	@	.32
No. 1	.20	@	.22
No. 2	.19	@	.20
No. 3	.17	@	.18
A. Italian, 18 basis	.36	@	.37
Finisned Jute—			
Dark, 18 basis	.18	@	.20
Light, 18 basis	.20	@	.22
Jute Wrapping, 3-6 Ply—			
No. 1	.15½	@	.16½
No. 2	.11¾	@	.12¾
Tube Rope—			
4-ply and larger	.10¾	@	.10¾
Fine Tube Rope—			
4-ply	.12¼	@	.12¾
3-ply	.13¼	@	.13¾
2-ply	.14¼	@	.14¾
Paper Makers Twine			
Balls	.09¼	@	.11¼
Box Twine, 2-3 ply	.11¼	@	.12¼
Jute Rope	.09	@	.10
White Hemp	.12¼	@	.12¾
Java Sisal—			
No. 1 Basis	.10	@	—
No. 2 Basis	.09	@	—
New Zealand Sisal	.10	@	—
Sisal Lath Yarn—			
No. 1	.12	@	.14
No. 2	.10	@	.12
Manila Twine	.23	@	.28

CHICAGO

Paper
(F. o. b. Mill)

Rag Bond	.30	@	.53¼
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	.04	@	.11
Superfine Writing	.18	@	.24
No. 1 Fine Writing	.14	@	.18
No. 2 Fine Writing	.12	@	.14
No. 3 Fine Writing	.07	@	.18
No. 1 M. F. Book	.06½	@	.07½
No. 2 M. F. Book	.05¼	@	.06¼
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07½	@	.12
Coated Label	.07½	@	.10
No. 1 Manila	.04¼	@	.05¾
No. 1 Fibre	.04¾	@	.05¼
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.03¼	@	.03¾
No. 1 Kraft	3.50	@	4.50
Southern Kraft	2.62½	@	—
No. 2 Kraft	2.62½	@	—
Wood Tag Boards	.04¼	@	.06¼
Sulphite Screenings	.03	@	.03¼
Manila Tissue	.07	@	.07¼
White Tissue	.07¼	@	.07½

(Delivered Central Territory)

News, per ton—			
Rolls, contract	45.00	@	—
Sheets	50.00	@	—
Boards, per ton—			
Plain Chip	27.50	@	—
Solid News	30.00	@	—
Manila Lined Chip	37.50	@	—
Patent coated	47.50	@	—
Container Lined—			
85 Test	50.00	@	55.00
100 Test	55.00	@	60.00

Old Papers
(F. o. b. Chicago)

Shavings—			
No. 1 White Envelope cuttings	1.50	@	1.55
No. 1 Hard White	1.40	@	1.45
No. 1 Soft White	1.00	@	1.10
Ledger & Writings	.45	@	.55
Solid Books	.25	@	.30
Blanks	1.00	@	1.05
Krafts	.70	@	.80
New Kraft Cuts	1.15	@	1.25
Manila Env. Cuts	1.25	@	1.30
Ex. No 1 Manila	.90	@	1.00
Print Manila	.30	@	.35
Overissue News	.30	@	.35
Old Newspapers—			
No. 1	.25	@	.30
Mixed Papers—			
No. 1	.15	@	.20
Roofing Stocks—			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper
(F. o. b. Mill)

Bonds	.04	@	.40
Ledgers	.06	@	.40
Writings—			
Superfine	.10	@	.18
Extra Fine	.15	@	.26
Fine	.15	@	.26
Fine, No. 2	.10	@	.25
Fine No. 3	.05½	@	.18
Book, M. F.	.04¾	@	.07
Book, S. S. & C.	.05	@	.07½
Book, Coated	.06	@	.16
Coated Lithograph	.06	@	.11
Label	.07	@	.11
No. 1 Jute Manila	.06	@	.09
Manila Sul., No. 1	.03	@	.05
Manila No. 2	.03	@	.04
No. 1 Kraft	.05¼	@	.06
No. 2 Kraft	.03¾	@	.04¼
Southern Kraft No. 1	—	@	.03¾
Southern Kraft No. 2	—	@	.02¾
Common Bogus	.03	@	.04

(Delivered Philadelphia)

News Print Rolls	46.00	@	—
Straw Board	32.00	@	—
News Board	30.00	@	—
Chip Board	30.00	@	—
Wood Pulp Board	70.00	@	80.00
Binder Boards—			
No. 1, per ton	73.00	@	75.00
No. 2, per ton	62.00	@	65.00
Carload lots	60.00	@	65.00
Tarred Felts—			
Regular	52.25	@	54.25
Slaters (per roll)	.84	@	.94
Best Tarred, 1-ply (per roll)	1.95	@	2.10
Best Tarred, 2-ply (per roll)	1 50	@	1.60
Best Tarred, 3-ply	2.00	@	2.25

Domestic Rags (New)
(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1.	.03½	@	.04
New White, No. 2.	.02½	@	.04
Light Silesias	.02½	@	.03
Silesias, No. 1	.03	@	.03½
Black Silesias, soft.	.02½	@	.03
New Unbleached	.05	@	.05½
Washable, No. 1	.01	@	.01½
Blue Overall	.03	@	.03½
Cottons—According to grades—			
Washable, No. 2	.01	@	.02
New Blue	.01	@	.02
Fancy	.01½	@	—
New Black Soft	.02	@	.03
New Light Seconds	.01	@	.02
New Dark Seconds	1.50	@	1.75
Khaki Cuttings—			
No. 1 O.D.	.03	@	.03½
No. 2 Mixed	.02½	@	.03
Corduroy	.02	@	.02½
New Canvas	.03½	@	.04
New Black Mixed.	.02½	@	.03

Domestic Rags (Old)

White No. 1—			
Repacked	2.50	@	3.00
Miscellaneous	1.75	@	2.00
M. G.	3.00	@	3.50
Thirds and Blues—			
Miscellaneous	1.00	@	1.25
Repacked	1.50	@	1.75
Black Stockings (Export)	2.00	@	3.50
Roofing Stock—			
Foreign No. 1	.50	@	.75
Repacked	.70	@	.80

Bagging
(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.25	@	1.50
Domestic	1.50	@	—
Manila Rope	2.00	@	2.25
Sisal Rope	1.25	@	1.50
Mixed Rope	1.00	@	1.10
Scrap Burlaps—			
No. 1	1.25	@	1.50
No. 2	.80	@	1.00
Wool Tares, heavy	2.75	@	—
Mixed Strings	1.15	@	1.25
No. 1 New Light Burlap	2.25	@	2.50
New Burlap Cuttings	2.00	@	2.25

Old Papers
(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	1.60	@	1.70
No. 2 Hard White	1.50	@	1.60
No. 1 Soft White	1.25	@	1.30
No. 2 Soft White	1.10	@	1.15
No. 1 Mixed	.50	@	.60
No. 2 Mixed	.40	@	.50
Solid Ledger Stock	1.00	@	1.10
Writing Paper	.75	@	.80
No. 1 Books, heavy	.55	@	—
No. 2 Books, light	.40	@	—
No. 1 New Manila	1.10	@	1.15
No. 1 Old Manila	.75	@	.80
Print Manila	.45	@	.50
Container Manila	.40	@	.45
Old Kraft	.85	@	.90
Common Paper	.20	@	.25
No. 1 Mixed Paper	.25	@	.30
Straw Board, Chip	.25	@	.30
Binders Board, Chip	.25	@	.30
Corrugated Board	.35	@	.45
Overissue News	.45	@	.55
Old Newspaper	.40	@	.50

BOSTON

Paper
(F. o. b. Mill)

Ledgers—			
Sulphite	.06	@	.12½
Rag Content	.12	@	.30
All Rag	.36	@	.52½
Bonds—			
Sulphite	.05½	@	.11¾
Rag Content	.12	@	.30
All Rag	.36	@	.65
Writings	.06½	@	.20
Superfines	.11	@	.31
Book, Super	.06	@	.09
Book, M. F.	.05½	@	.08½
Book, Coated	.08½	@	.18
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06¾
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	—	@	.04¾
No. 2 Kraft	—	@	.02¾

(F. o. b. Boston)

Southern Kraft	—	@	.02½

(F. o. b. destination in carload lots, f. o. b. mill in less than carload lots.)

Common Bogus	.02	@	.02¾

(Delivered New England points)

News Print, rolls	44.50	@	—
Straw Board, rolls	.009	—	@35.00
Straw Board in Sheets, basis 35s to 70s	—	@	40.00
Filled News Board	—	@	30.00
Chip Board	27.50	@	—
Chip Board (Creasing)	27.50	@	30.00
Single Manila Lined Chip	—	@	37.50
Single White, Patent Coated News Board—Bender	45.00	@	55.00
Wood Pulp Board	70.00	@	75.00
Binder Boards	62.00	@	75.00

Old Papers
(F. o. b. Boston)

Shavings—			
No. 1 Soft White	1.50	@	1.60
No. 1 Old Manila	.50	@	.60
No. 2 Mixed	.50	@	.55
No. 1 Mixed	.75	@	.85
Solid Ledger Books	1.20	@	1.40
Overissue Ledger Stock	1.15	@	1.30
Mixed Ledgers	.60	@	.70
No. 1 Books, heavy	.55	@	.65
No. 1 Books, light	—	@	.30
Crumpled Stitchless Book Stock	.50	@	.60
Manila Env. Cuttings	1.25	@	1.30
No. 1 Old Manila	.55	@	.65
White Blank News	.95	@	1.00
Kraft No. 1	.90	@	1.00
Manila	.80	@	.90
No. 1 Mixed Papers	.15	@	.20
Print Manila	.30	@	.40
Overissue News	.35	@	.45
Old Newspapers	.32½	@	.35
Box Board, Chip	.17½	@	.20
Corrugated Boxes	.20	@	.25
Screening Wrappers	.25	@	.32½

Bagging
(F. o. b. Boston)

Gunny No. 1—			
Foreign	—	@	1.00
Domestic	.80	@	.85
Manila Rope—			
Foreign	1.40	@	1.50
Domestic	—	@	1.60
Transmission Rope	1.00	@	—
Mixing String	—	@	.30
Jute Rope	—	@	.75
Jute Carpet Threads	.25	@	.30
Bleachery Burlap	1.75	@	2.00
Scrap Burlap	.60	@	1.00
No. 1 Scrap Burlap	.80	@	.90
Scrap Sisal	.75	@	.85
Scrap Sisal for shredding	.90	@	1.00
Wool Tares, heavy	.65	@	.75
New Burlap Cutting	.75	@	.90
Australian Wool Pouches	—	@	1.50
Heavy Baling Bagging	.90	@	1.10
Paper Mill Bagging	.50	@	.60
Bagging No. 2	.20	@	.25
No. 1 Burlap	1.80	@	2.00

Domestic Rags (New)
(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	—	@	.01½
New White No. 1.	.03¾	@	.04
New White No. 2.	.02¾	@	.03¼
Silesias No. 1	—	@	.03
New Black Silesias	.02½	@	.02¾
New Unbleached	.05	@	.05¼
Fancy	—	@	.02½
Washable	—	@	.01¾
Cottons—According to grades—			
Blue Overalls	—	@	.03¾
New Black, soft	.04	@	.04½
Khaki Cuttings	.03	@	.03½
O. D. Khaki	.03½	@	.03¾
Corduroy	.02¾	@	.03
New Canvas	—	@	.05
B.V.D. Cuttings	.04	@	.04¼

Domestic Rags (Old)
(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.00	@	2.25
White No. 2—			
Repacked	.02¾	@	.02½
Miscellaneous	.02	@	.02¼
Twos and Blues	.90	@	1.00
Thirds and Blues—			
Repacked	.75	@	.85
Miscellaneous	.70	@	.75
Black Stockings	2.00	@	2.25
Roofing Stock—			
No. 1	.35	@	.40
No. 2	.30	@	.35
No. 3	.25	@	.30

Foreign Rags
(F. o. b. Boston)

Dark Cottons	.50	@	.60
New No. 1 White Shirt Cuttings	3.75	@	4.00
Dutch Blues	1.25	@	1.50
New Checks & Blues	2.25	@	2.50
Old Fustians	—	@	.75
Old Linsey Garments	.55	@	.65

TORONTO

Paper
(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.10¼	@	—
No. 2 Sulphite	.08½	@	—
No. 1 Colored	.10¾	@	—
No. 2 Colored	.09	@	.10½
Ledgers (sulphite)	—	@	—
Ledgers, No. 1	.36	@	—
Ledgers, No. 2	.27	@	—
Writing	.09	@	.09½
Book—			
No. 1 M. F. (Carloads)	6.65	@	—
No. 3 M. F. (Carloads)	6.20	@	—
No. 4 M. F. (carloads)	5.25	@	—
No. 1 S. C. (carloads)	7.15	@	—
No. 3 S. C. (carloads)	6.65	@	—
No. 4 S. C. (carloads)	5.70	@	—
No. 1 Coated and Litho	12.50	@	—
No. 2 Coated and Litho	11.50	@	—
No. 3 Coated and Litho	10.00	@	11.50
Coated tinted	14.00	@	—
Wrapping—			
Rag Brown	4.40	@	—
White Wrap	2.00	@	—
"B" Manila	4.90	@	—
No. 1 Manila	5.40	@	—
Fiber	5.40	@	—
Kraft, M. F.	5.75	@	—
Kraft No. 2	5.40	@	—

(F.O.B. Cars Toronto)

News, per ton—			
Rolls (contract)	45.50	@	—
Sheets	50.50	@	—

Pulp
(F. o. b. Mill)

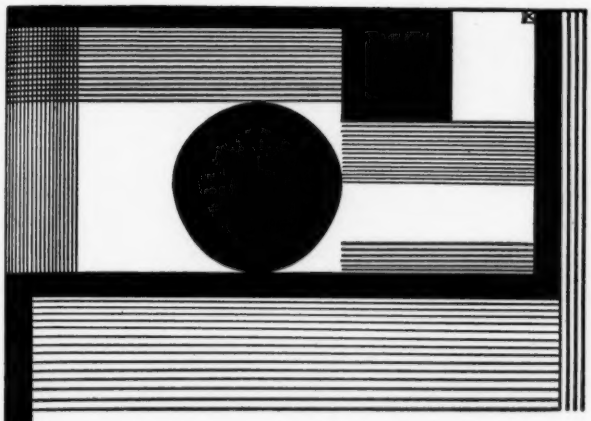
Ground Wood	18.00	@	20.00
Sulphite easy bleaching	40.00	@	—
Sulphite, news grade	38.00	@	—
Sulphite, bleached	48.00	@	58.00
Sulphate	50.00	@	—

Old Waste Paper
(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	1.80	@	—
Soft White	1.40	@	—
White Blk. News	1.25	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	.90	@	—
Light and Crumpled Book Stock	.80	@	—
Ledgers and Writings	1.00	@	—
Manilas—			
New Manila Cut	1.25	@	—
Printed Manilas	.55	@	—
Kraft	1.75	@	—
News and Scrap—			
Strictly Overissue	.50	@	—
Strictly Folded	.50	@	—
No. 1 Mixed Paper	.40	@	—

Domestic Rags
(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.09½	@	.10
Fancy Shirt Cuttings	.06	@	.06¼



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SIXTY FIRST YEAR

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